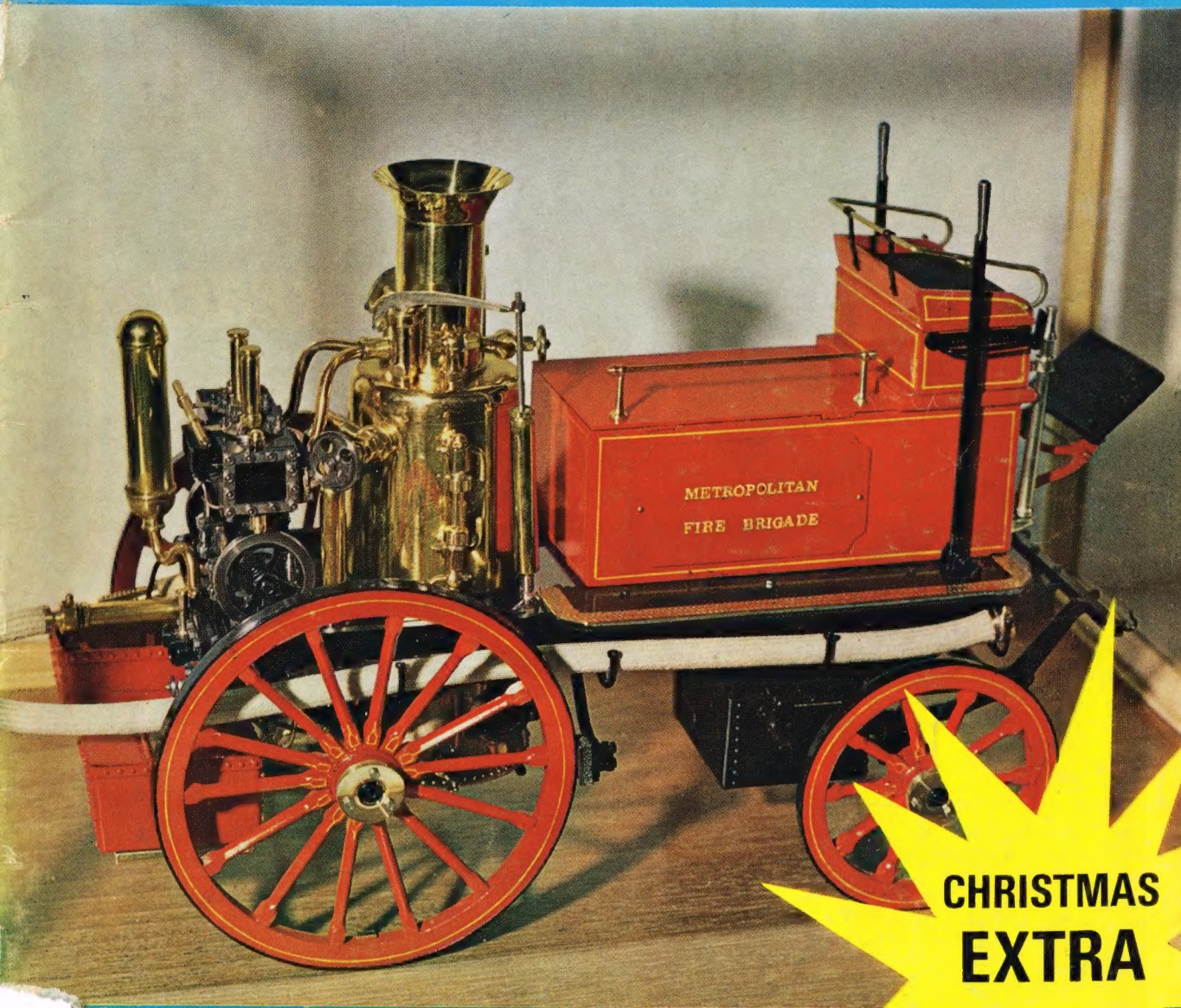


Model Engineer



HOBBY MAGAZINE
DECEMBER 1972

15p



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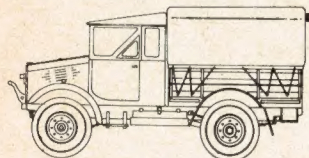
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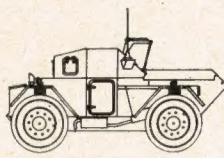
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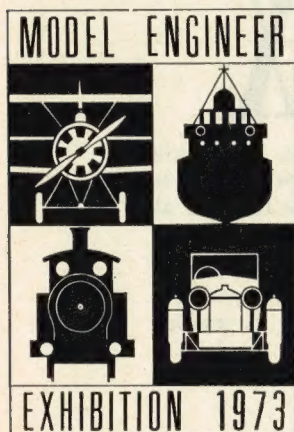
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(Not Sunday)

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Hours of opening:

Daily 10 a.m. - 9 p.m.

(January 2nd: 2.30 p.m. - 9 p.m.;

January 13th: 10 a.m. - 7 p.m.)

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On the Cover...

Miss Cherry Hinds' attractive Fire Engine - a past winner at the M.E. and one of the most attractive miniatures ever displayed there.



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THE MAGIC OF STEAM

Whatever else may grace our display one thing we may be certain of, and that is the strength of the entry which relies on live steam as its motive power. At a time when fewer and fewer railways throughout the world are maintaining steam locomotives, bands of enthusiasts are cheerfully giving their leisure to operating small branch lines to keep their own preserved engines and rolling stock in use... What is more some of them are making it pay because so many of us share their zest for steam albeit in a lesser degree. Most of the more elaborate models on display, which may have taken anything from a year to a decade or more to complete will be relying on this source of power whether as railway engine, road locomotive or, more rarely, stationary engine. In the summer months thousands will have flocked to steam engine rallies, to miniature railways providing rides round stately homes, or to more elaborate miniatures such as the Romney, Hythe and Dymchurch Railway on the Kent coast.

Visitors who are new to the world of models may care to ponder on the magic of steam... a magic that no diesel, electric or internal combustion motor has yet been able to capture for itself. Those already involved will have no doubts at all, but hurry eagerly to those parts of the hall where the smell of engines warming up promises another spell of pleasant entertainment.

Once again, we must make it quite clear that an exhibition like this could never be attempted without the wholehearted support of the model club movement. Our trusty standby, the Society of Model and Experimental Engineers, once again provides the passenger-carrying railway with 'Bill' Carter in charge, staffs and operates the Model Engineer's S.M.E.E. workshop, displays a selection of working models under compressed air. The Southern Federation of Model Engineering Societies is operating a demonstration stand again - increased in size to accommodate their many would-be helpers; the North London Society of Model Engineers again mans its interesting stand. Many other societies make tentative approaches to put on a show and to them we must say thank you - if they would really like to have a go, we shall be delighted to hear from them for the next time with positive propositions.

Other model groups also help in the presentation - the Proto-four society with its fine scale small gauge scenic model railway system is here with us again; and our electric model aircraft could hardly be operated without the support of such clubs as R.A.F. Spitalgate M.C. The various associations who handle the affairs of model divisions are equally to the fore with International Plastic Modellers' Society, British Model Soldier Society, Model Power Boat Association, Society of Model Aeronautical Engineers all playing their part and ready to help and welcome newcomers with news of activities all over the country.

Use of the small swimming pool as a boating marina was tried out last year for the first time and proved very popular. On this occasion we shall try to improve on our efforts with better provision for spectators, regular timed programmes - and once again, of course, a great deal of participation by club groups!

(continued on page 64)

HISTOREX

We are proud to introduce to you Historex plastic kits. These kits represent, at the moment, the foot and mounted troops of the 1st French Empire Armies, although it is planned in the future to cover all periods of all armies.

Cast in white shock proof polystyrene, a mounted figure is composed of approximately 40 separate pieces, making it possible for anyone to personalise his figurine whilst respecting historical truth in its smallest details.

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All mounted figures listed below are available as officers, standard bearers, trumpeters and soldiers

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Chasseurs of the Guard: Full Dress or Service Dress.

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Journal of Ships &
Ship Models**

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**Demonstrations,
Displays, Plans,
Photographs,
Books, and a
warm welcome
on Stand No:**

26

Model Shipwright at the Model Engineer Exhibition

There will be daily demonstrations of spinning ropes for models and making gummed paper hulls. Members of the Editorial staff will be in attendance on the stand to greet visitors and talk about ships and ship models.

There will be a display of ship photographs and plans of ship models in various stages of construction.

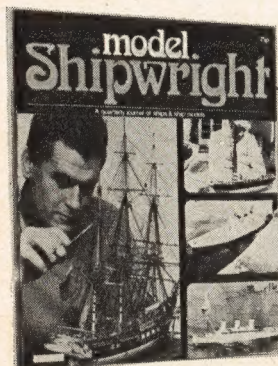
Conway Maritime Press—publishers of **Model Shipwright**—will be showing a selection from their current list of nautical and ship modelling books. Copies of these will be on sale on the stand.

During the exhibition visitors to the stand will also be able to purchase sample copies of Model Shipwright Volume 1 Nos. 1 & 2 at 75p per copy.

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- ☐ Making Realistic Bowsies
- ☐ Making Rigging Blocks and Deadeyes.
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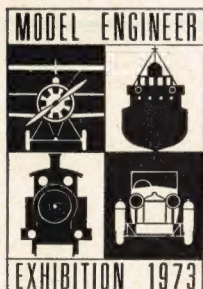
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Bassett-Lowke model railways are the product of over 70 years experience. We shall be pleased to help you with your requirements in connection with this most fascinating of all hobbies.



What you will be seeing at the Model Engineer Exhibition

IN THE AIR: ELECTRIC POWERED FLYING MODELS

Last year with some trepidation we enlarged our flying circle to the utmost diameter that will go in the hall – from balcony to balcony. In spite of the light weight of the flying models involved we had no little difficulty in persuading our standfitters that the takeoff circle could for the most part be ultra-light and in the same way it was necessary for a kind of window-cleaner's harness to be provided when models had to be adjusted on the circle.

In the event everybody was highly delighted with the circle; the models flew better than we had expected and nearly as well as we had hoped. R.A.F. Spitalgate Model Club masterminded the operation and provided the special pylons and will be here again on this occasion with a further year's practice and experiment behind them. We hope now to be really able to see quite venturesome stunting plus more of the fascinating autogyros, last year still strictly experimental. Encouraged by these displays a number of clubs and lone hands have been at work and we hope to welcome back old friends from Luton, and invite other enthusiast clubs to make their bow.

There are gallery seats for several hundred visitors who will find watching the planes go round a pleasant relaxation whilst they eat their sandwiches and rest their feet from the fray.

ON THE PERMANENT WAY: LIVE STEAM LOCOMOTIVES

No exhibition would be complete without the S.M.E.E. passenger-carrying track and the rota of locomotives marshalled by Bill Carter and his enthusiast supporting team. All of the locomotives doing their stints will have been made by club

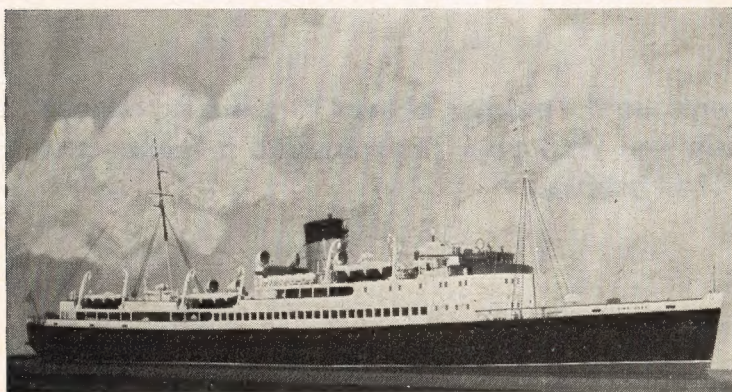
members, many will be old friends seen during the summer at club rallies, or recognised as distinguished past winners at the M.E. Exhibition. We hope all visitors will join in the fun and have a ride, there are no restrictions as to age, sex or even bulk . . . everyone is welcome to enjoy a run. If you are lucky enough to have a locomotive of your own and would like to run it in steam, do drop us a line to pass on to Bill Carter . . . you could even mention it to him at the show and see if he can slip you in the roster.

IN THE WORKSHOP

The Society of Model and Experimental Engineers will once again be manning the popular workshop. Members and *Model Engineer* consultants will be operating a truly **working** workshop, turning, milling, or carrying out other operations. Professor Chad-dock and Mr. George Wildy will be in attendance from time to time to give talks or demonstrations. At all times expert advice on all model engineering matters will be readily available . . . Bring your problems with you. . . . Opposite the workshop will be the S.M.E.E. display of models working under compressed air. All models on display are the work of members, and here, too, discussion of constructional techniques will be welcomed.

J. H. Wilding's eight-day skeleton clock which stands 19 in. high.

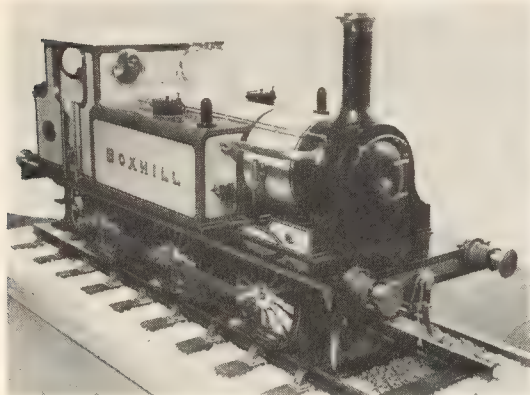
A fine model, nearly 5 ft. long, of S.S. King Orry, Isle of Man Steam Packet Co. by S. R. C. Walmsley.



ON THE WATER: THE BOATING MARINA

The swimming pool, some hundred feet long by thirty wide, will be the scene of regular model boating activities. Trade demonstrations will take place from time to time during the day; clubs will be in attendance to operate models of all kinds, with competition running in the evenings. One school has already promised to put on a display of one-class boats built as a handicraft project complete with appropriate r/c. To improve visibility for spectators no selling will take place from the waterside, leaving unobstructed sight of the water. A one-step platform will be arranged so that two tiers of spectators can enjoy the boating. Finally, programmes will be arranged at regular times so that if one show is already too full you can arrange to view later, or come back to see some particular model at work.

We are always willing to let visitors try their own boats on the water. . . . If this appeals to you drop us a line, or inquire for the programme steward at the water.



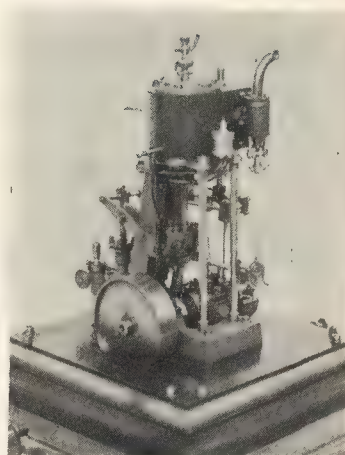
MATTERS MILITARY . . .

Space in the Lecture Hall will be devoted to a display of militaria models in cabinets along the wall. These will include both contest entries and some trade exhibits. Also here will be found the International Plastic Modeller's Society's stand, with their own display and members in attendance to assist visitors. The British Model Soldier Society will be here again, with models and experts to talk to visitors. For those in search of source material Bellona booklets and drawings will be available.

In the nearby Bryanston Room will be displayed the moving diorama of Napoleon reviewing his troops which has graced the entrance to the Musée de l'Armée in Paris for some time since being built to commemorate the bicentenary of the Emperor's birth. This exciting display, some eight feet by six feet, comprises 299 figures which move in review order past their commander and consists entirely of hand-painted Historex models.

Meanwhile, in the Committee Room on the first floor, battle will be waged in a series of wargames, compered by Charles Grant and other experts. There is seating for fifty people, and admission will be by ticket. In this way interested visitors will be able to see a game through from start to finish with

Vertical Marine
Type Engine $\frac{1}{2}$ in.
bore and stroke
by R. K. Moore.



L. B. S. C. Terrier
to M.E. design by
Martin Evans, built
by C. E. Hobbs.

expert comment. More public displays: last show left some visitors, who had come in half-way through, rather baffled so that these set performances are being staged to avoid this problem.

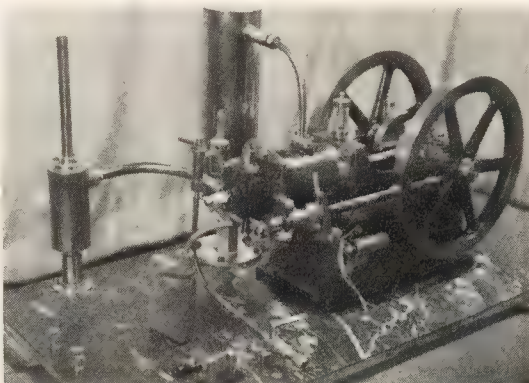
THE BRYANSTON ROOM

This room will be the centre of a number of small demonstration areas, ranging from the cardboard modelling of Alec Campbell's Sea Gull Co. through Clock Corner to the workshop activities of the Southern Federation of Model Engineering Societies, and the North London M.E.S. Then there is practical work on the fine scale Protofour Society's stand for the scenic railway modeller. Here, too, will be seen some of the larger road vehicles, including the exciting Foden Wagon shown last year in the loan section at an early stage of construction.

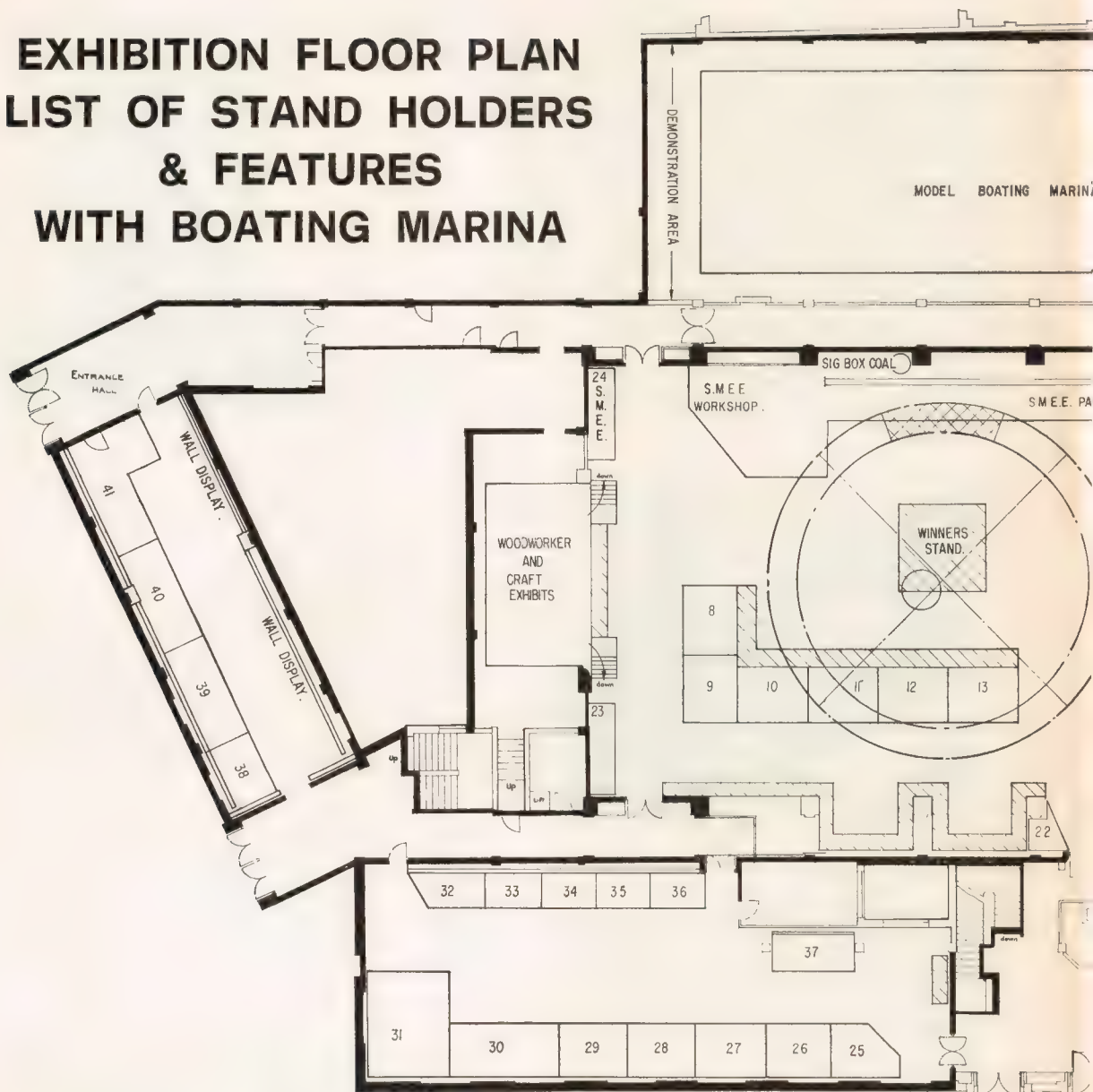
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M.P.B.A. will be providing their ever-changing variety of successful models in the various competition classes with experts on tap to discuss problems or to direct newcomers to their nearest clubs. Their activities will from time to time be diverted to more practical work at the Boating Marina.

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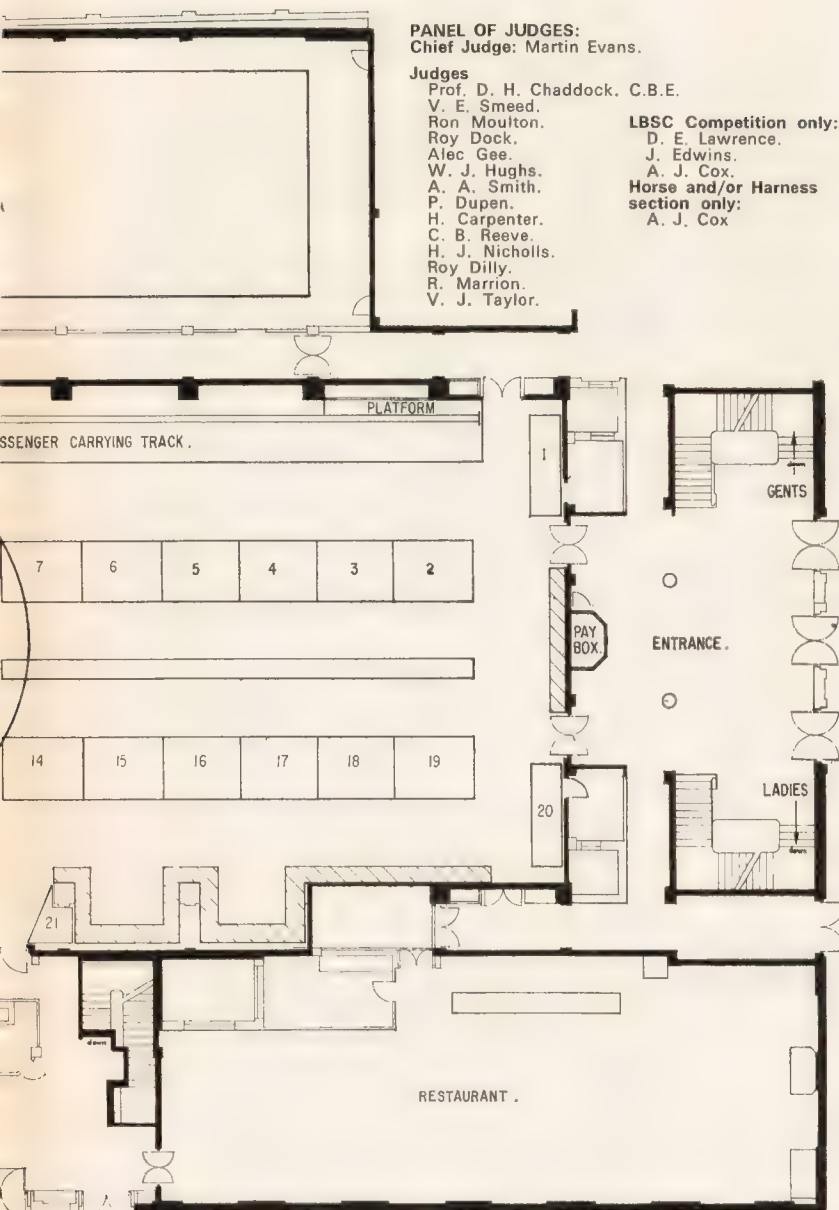
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Ron Moulton.
Roy Dock.
Alec Gee.
W. J. Hughes.
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OTHER SPECIAL FEATURES

ON THE STAGE

Woodworker with craft entries & Gildas Jaffrenou with his Folk Harps

IN THE MAIN HALL

Passenger carrying model railway.
Electric-powered flying model aircraft competition and Loan Models on display.

IN THE BRYANSTON ROOM

Special Air Services Jeep Competition entries.

IN THE SMALL SWIMMING POOL

Boating Marina - with timed daily programme. (See notices)

IN THE COMMITTEE ROOM

Daily Wargames. Admission by ticket from Bellona.

IN THE GALLERY

Boys Exhibition of models produced by members of Commander Guffick's Boys' Club.

EXHIBITION OFFICE

Is at the end of the gallery adjoining this display.

ADDITIONAL NOTES

LICENCED RESTAURANT is on the Ground Floor.

BALCONY CAFE is open for snacks, sandwiches, soft drinks and is NOT licenced.

TOILETS, CLOAKROOM in the basement, approached by stairs in main entrance lobby.

THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

The S.M.A.E. will be displaying their activities in the Lecture Hall in the form of a static arrangement showing past and present work and hopes for the future. It will not be manned wholetime, but enquiries can be passed to appropriate experts.

ON THE STAGE . . . A HARP FOR YOU

Of the many woodworking crafts encouraged by the *Woodworker* none seems to attract so much attention as the making of musical instruments. Here to mark the launch of his book **Folk Harps** will be Mr. Gildas Jaffrenou, who will be demonstrating some of the steps in making these fascinating small harps – now in demand all over the world – and also showing his skill in playing them. They have a very sweet note and can be played quite easily by any musical person.

Also displayed on the stage will be other craft exhibits and appropriate books and manuals on woodworking subjects. Mr. Vic Taylor, Editor of *Woodworker* will be available to meet readers.

THE MODELS . . .

The models are, as ever, the focal point of our annual exhibition. It is remarkable how year by year elegant, clever, beautiful and sometimes frankly extraordinary models are presented covering an unbelievably wide range of interests. The anchor pieces, however, continue to be the traditional models, with locomotives, traction engines and boats vying for pride of place. The growing interest in military models is reflected in the increasing numbers of entries in their classes. Equally gratifying is the strong support given by younger entrants, as may be seen in the fine display on

view in our Boys' Exhibition, occupying the gallery promenade, and some fine group entries by school and apprentice builders.

REFRESHMENTS

Ground floor restaurant provides lunch and an evening meal. Here will be found the licensed bar, which is open all day. On the Balcony, overlooking the main hall, is a buffet providing hot and cold soft drinks, tea, coffee, sandwiches. The buffet is not licensed.

GALLERIES

Offer several hundred seats where those with packed lunches can enjoy them in comfort and still look down on activities in the main hall. This equally provides an opportunity for a rest for those who are just a little weary and need nothing so much as a good sit down.

CLOAKROOM AND TOILETS

Will be found in the basement. Stairs lead down on either side of the main entrance lobby and are adequately signposted.

OUR COMMISSIONAIRES

Are here to help you; please follow any requests they may make in the matter of crowd marshalling. Last year attendance was very heavy at weekends which necessitated some queueing. If you can come along in the week there is likely to be more room. If you order tickets in advance then you can go straight in.

PHOTOGRAPHY

Visitors are welcome to take photographs of exhibits. If flash is used please be careful to warn nearby onlookers. Our stewards will be happy to give any assistance in making better pictures possible.

Railway fans are not left out. There will be products by Lima, Triang, Rivarossi, Atlas, Trix, Miniature, Lees, Farish & Fuller Building Kits.

MAIN HALL – Stand No. 3 WELLER ELECTRIC LTD

Weller Electric are once again showing their range of Marksman Soldering Irons. Fitted with a variety of tips you can find them suitable for many kinds of hobby work.

Weller Instant Heat Guns will be demonstrated, showing ways in which you can improve your model railway scenery, doing joinery jobs on the track and repairing any plastic breakages you may have.

The Weller automatic 30-second Glue Gun should be seen to find out how quickly you can construct wooden model air-planes, also supplied with caulk to waterproof your model boats.

New from Weller, the versatile mini drill now working from the mains to enable you to do a variety of delicate model engineering jobs with metal, wood, plastic and other materials.

Also available will be a range of Lufkin tape measures including the 5-metre Ultralok known as the 'measuring machine'.

MAIN HALL – Stand Nos. 4 and 5 N. MOLE & CO (Machine Tools) LTD

Exhibiting for the first time at the Model Engineer

(continued on page 33)

TRADE EXHIBITORS

MAIN HALL – Stand No. 1

WALL MODELS

Wall Models will have as the main attraction this year the complete range of PHOENIX MODELS products, from the 20 mm. English civil war and Marlburian figures, through the 25 mm. Napoleonic, Ancient and Colonial ranges, to the bigger 30 mm. and 54 mm. figures, covering such periods as civil war, Marlburian, and the new 30 mm. Bands. Also available for the first time will be the new 54 Diorama accessories, anything from a dining room down to a dinner plate.

Also available will be a full range of 54 mm. figures by Staddens backed by their larger 90 mm. counterparts, plus figures by Lasset, Almarks and from America the 'VALIANT MINIATURES' 54 mm. range, which are fairly new to this country. Another product from America will be the range of Avalon Hill Games. Other items of interest on sale will come from Iamming (25 mm.). Timpo Napoleonic, Fujima 1/76 Tanks, plus a complete service for the wargamer including Rules, Dice, Scenery, etc.



By far the most successful R/C helicopters to date, and the ones which will certainly set the style and standard for the future are the Kaven Bell Jet Ranger seen left and the Dieter Schluter designed Schuco-Hegi Bell Hueycobra. Both are kitted in West Germany.

The Year of the Radio Control Helicopter

by Tony Dowdeswell

WAY BACK in 1960, the cover of the December edition of *Radio Control Models & Electronics* carried a picture of a model helicopter together with its designer, American Ken Norris. The model was a truly ambitious project, being a scale model of the Sikorsky S-64 Skycrane.

At that time, the full size aircraft had yet to fly, and so also had the model . . . and to the best of our knowledge, it never did. This fact is perhaps hardly surprising in the light of subsequent developments in this model hobby field. For one thing, Ken Norris lacked the benefit of modern proportional radio control systems.

Well into the mid-'60s however, a nucleus of experimentally minded radio control modellers began working again on the radio control helicopter idea. For the most part, these individuals worked alone, more or less oblivious to the efforts of others similarly engaged.

In West Germany, Engineers like Dieter Schluter and F. W. Biesterfeld, made progress, while in this country a few began experimenting, the most tangible results we saw being achieved by Keith Plested. In U.S.A. it was John Burkhart who led the way.

Even when *Simprop-Electronic*,

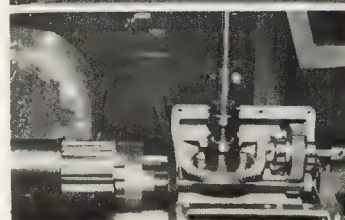
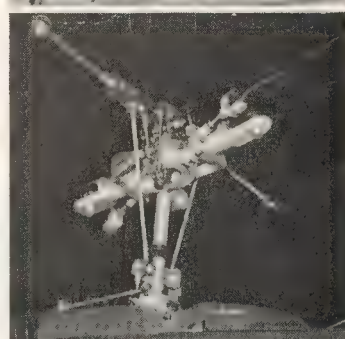
the West German manufacturers of model radio control equipment announced their promotion for an international radio control helicopter contest at Harsewinkel, West Germany, September 14-15, in 1968, I personally doubted that radio control helicopters would ever be a practical proposition!

The Harsewinkel helicopter contest really focussed attention on the radio control helicopter idea. The event actually drew 13 entries, none of which came anywhere near negotiating the complicated contest flying patterns stipulated for the competition, the prize money for which had totalled something in the region of £1,500.

None of the models flew for more than a few seconds and consequently, little of the high prize money was awarded. However, the event served to add impetus to the whole R/C helicopter movement and West Germany became recognised as a centre of R/C helicopter interest.

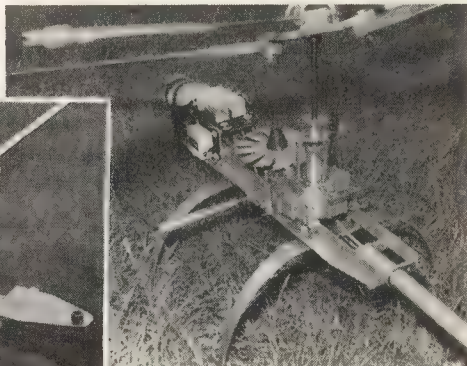
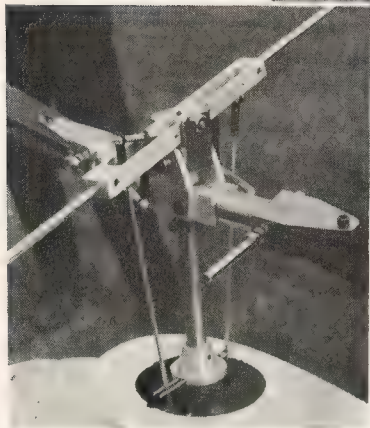
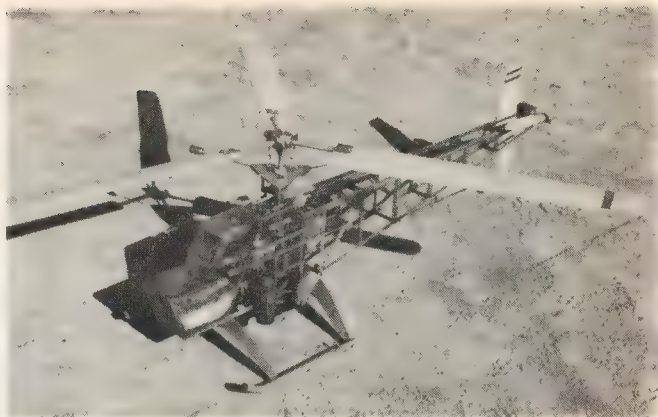
By far the most impressive models at the Harsewinkel contest were by Dieter Schluter and F. W. Biesterfeld, whose experi-

Right 1st and 2nd down: rotor heads of R/C helicopter by Schluter and Biesterfeld respectively. Right bottom: cut-away section through main drive gearbox of Schluter's 'copter.



Below: the main rotor drive, with its associated control mechanism, is the most complex and all important part of the R/C helicopter. This one is on the Kavan Bell Jet Ranger. Below right: example of American experimental R/C helicopter is the work of leading U.S. expert John Burkham. Test bed used to try various mechanical assemblies.

Right: Experimental Fujiyama 'copter is interesting example of Japanese experimentation. Features water radiator to cool motor.



mental machines progressed steadily in performance during the following year. As experience was gained, it became clear that quite apart from solving the entirely new mechanical problems involved, a key requirement for success was pilot experience. Experimenters were being held back by their own lack of R/C helicopter pilot experience . . . a real 'chicken and egg' situation if ever one existed.

Pilot ability in fact, is very

much the make or break factor in R/C helicopterry even today . . . and in very much the literal sense! The casual observer tends to assume that a reasonably expert pilot of fixed wing radio control models will do an equally competent job with a rotary winged machine. Such is not the case. Even the most expert fixed wing R/C pilots become raw beginners again when they change to helicopters.

Nevertheless, by 1970 the R/C helicopter was becoming a really practical proposition, if still only for those with the facilities and ability to engineer the many mechanical components involved. At Nuremberg on June 20th 1970, Dieter Schluter flew his Bell

Hueycobra for 27 minutes, a duration record, simultaneously establishing a closed course distance record of 11.5 Km. At the World R/C Championships in U.S.A. a year later, he demonstrated his helicopter again, together with Bruno Gotfried performing mild aerobatics. By the end of 1971, plans were in hand for the Schluter Hueycobra to be kitted by the West German Schco-Hegi company.

The first demonstration of R/C helicopterry in Britain occurred at Barnstormers/ M.A.P. Ltd., promoted R/C Expo held over Easter 1972. Dieter Schluter demonstrated the excellent control achieved with his now perfectly performing Hueycobra . . . Rip-Max, the British importers for Schuco-Hegi took orders for nearly a hundred Hueys on the spot! The Radio Control Model Helicopter had arrived.

Meanwhile F. W. Biesterfeld has developed his R/C helicopter to a very advanced stage. This design, a *Bell Jetranger* will also be kitted in West Germany by Kavan. In September 1972, I was able to see this machine in action in Britain, flown by Bruno Gotfried. Its performance is every bit as impressive as the Huey, indeed Gotfried placed the transmitter on the ground to demonstrate the stability of the model!

Whilst West Germany is certainly established as a leader and centre of R/C helicopter activity it would be wrong to ignore the efforts achieved elsewhere. In U.S.A. for instance there are already two R/C helicopter kits available and in Japan too there has been success.

Development of the radio control helicopter has now advanced to the point where it has become a practical proposition for the average, albeit experienced modeller. This achievement is remarkable for the short space of time it was taken, and for the tiny numbers of experimenters responsible for the achievement. To them, I take my hat off.

Truly, it has been the year of the R/C helicopter!



West Germany's Ing. Dieter Schluter is a man who has done more than any other to make model R/C helicopters a practical proposition for the hobbyist. Has flown many demonstrations throughout the world, three in U.K. during 1972.



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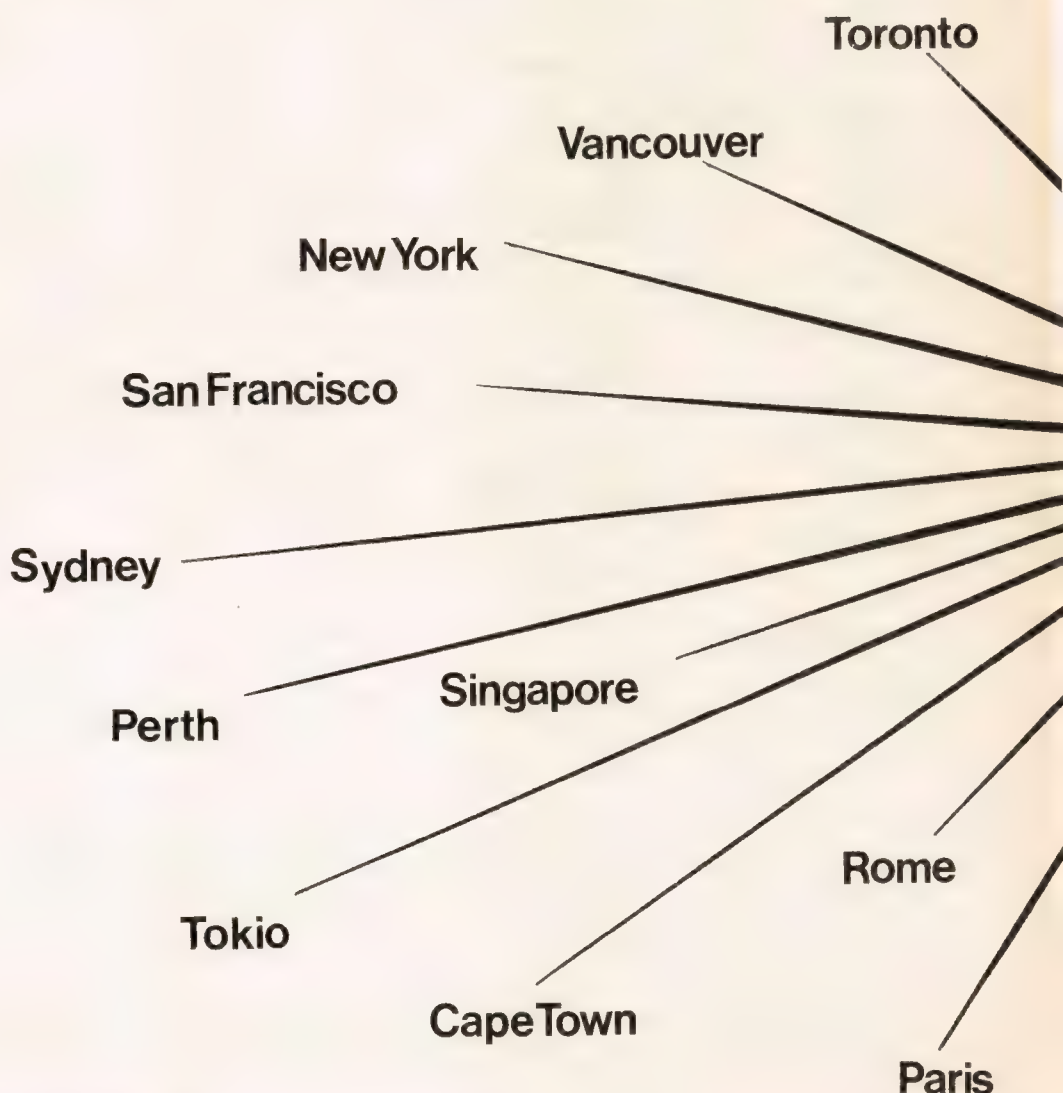
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**Thank you for visiting the
Exhibition and we hope you
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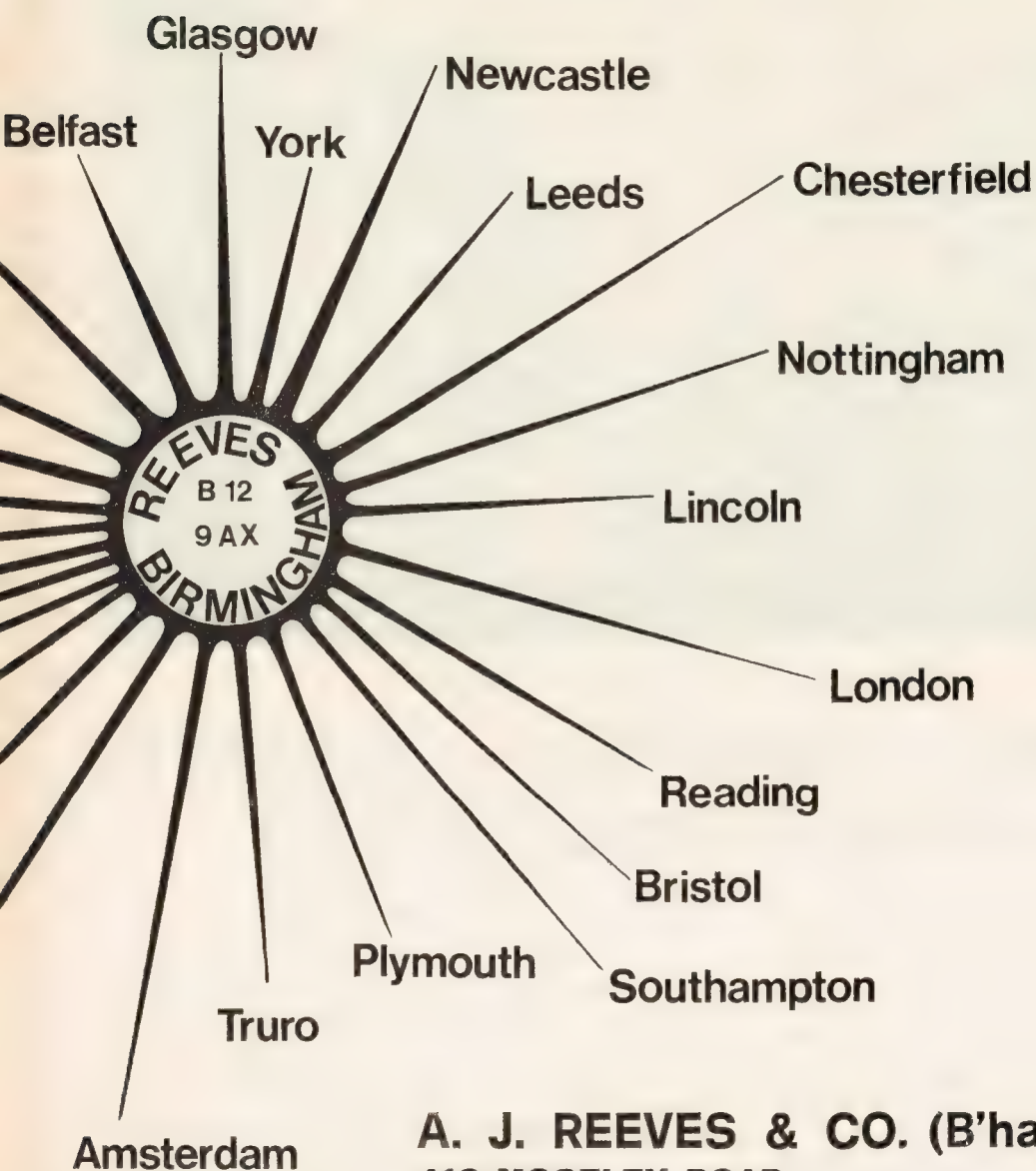
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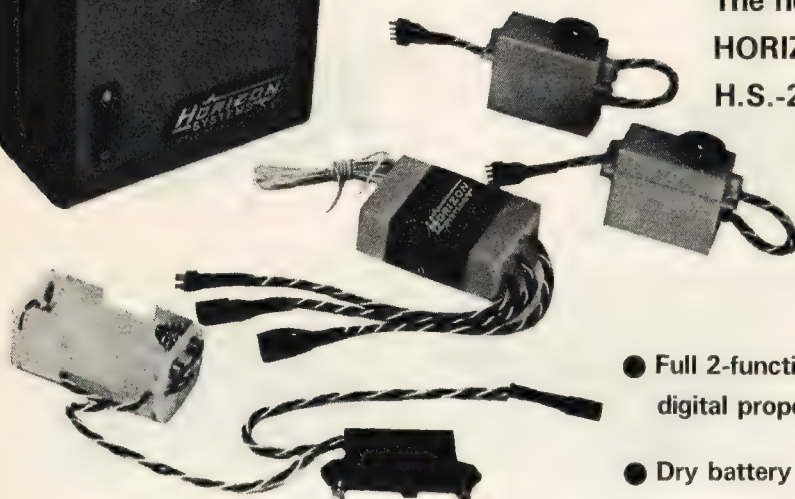
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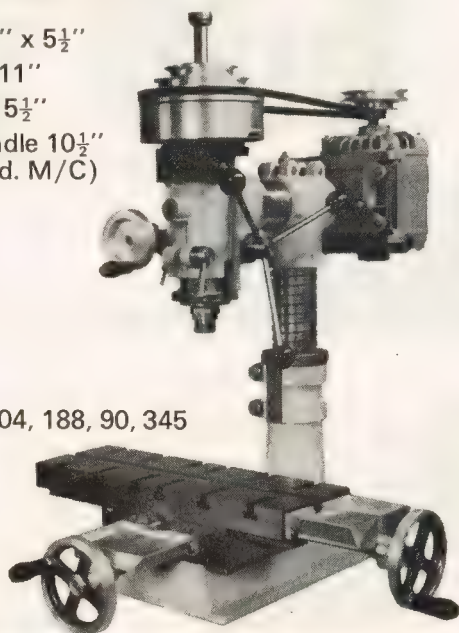
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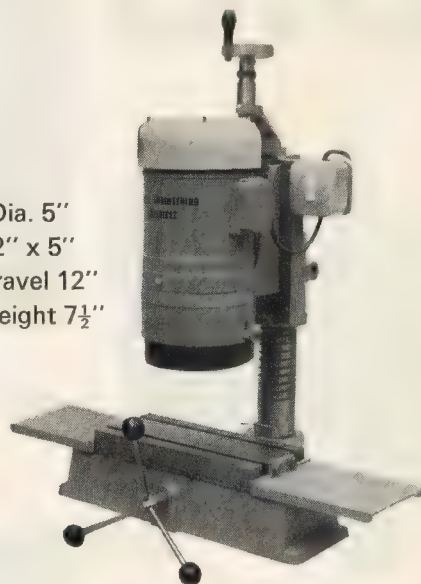
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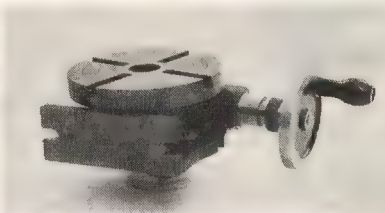


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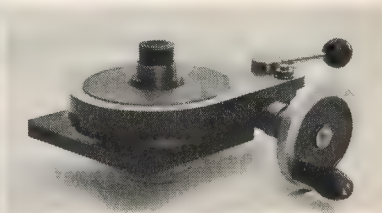
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RT 2



RT 3

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Once upon a time

Once upon a time there was a country called Model Railway Land. It was a very beautiful place, full of brightly coloured plastic railway engines and inhabited entirely by little boys and old men, and jellies and custard, barley-sugar twists and rainbows.

There were also jolly uncle-type people called model railway shopkeepers, and they made the little boys and old men very happy by keeping neat and tidy little shops full of shiny new, brightly-coloured model railway engines. Everybody was very happy.

Then one day a big ogre called Adolf Dracula, who was a very wicked, evil-looking gentleman with a rather nasty habit of biting people in the neck and sucking all their blood out, came along and said: 'I'm going to open a model railway shop and I'm going to sell rotten old, dusty, rusty, broken railway engines that nobody wants anymore and I'm going to make my shop all messy and musty and smelly and dirty and jolly filthy and disgusting and horrible, and if you don't come along and buy from me I'll eat you all up.' So he opened his shop, plus a second one for spite, and everyone came along to see him and sell him their old trains, because he said he'd pull their toenails out if they didn't. And he's still there, because not all fairy tales have happy endings.

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SPECIAL FIGURE

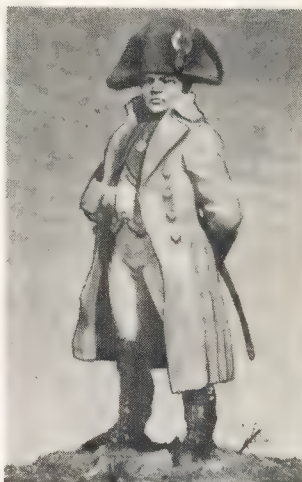
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(Private can be painted as American Civil War Zouave)



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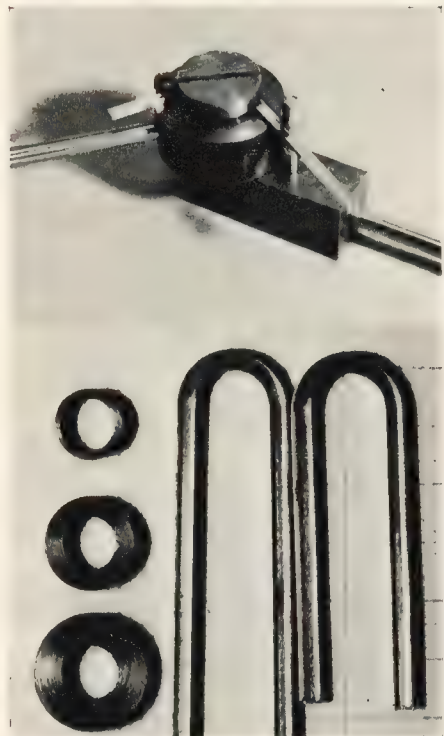
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1. CARABINIER OFFICER
2. GRENADIER PRIVATE
3. SAPEUR OF THE GUARD
4. GRENADIER ENSIGN
5. VOLTIGEUR LINE INFANTRY
6. OFFICER LINE INFANTRY
7. VOLTIGEUR LIGHT INFANTRY
8. DRUMMER, LINE INFANTRY

STAGE 5: BRITISH 1815

- RIFLE BRIGADE OFFICER
- RIFLE BRIGADE SERGEANT
- HIGHLAND OFFICER
- HIGHLAND PRIVATE
- HIGHLAND PIPER
- FIELD OFFICER
- ENSIGN
- PIONEER
- DRUMMER
- PRIVATE

STAGE 8: CANADIAN MILITIA 1885

1. PRIVATE
2. MTD. DRIVER
3. INDIAN
4. GUNNER
5. MOUNTED OFFICER
6. MILITIA OFFICER
7. OFFICER
8. MILITIA PRIVATE
9. NORTH WEST MOUNTED POLICE

STAGE 2: HUSSARS

1. TROOPER - CENTRE COY; MIRLETON
2. TROOPER - CENTRE COY; SHAKO
3. OFFICER - ELITE COY; COLPACK
4. OFFICER - CENTRE COY; SHAKO
5. MOUNTED OFFICER - CENTRE; MIRLETON
6. MOUNTED TROOPER - ELITE; COLPACK

STAGE 6: PILOTS

1. JAPANESE
2. LUFTWAFFE
3. R.A.F.
4. AMERICAN
5. ITALIAN
6. LUFTWAFFE

STAGE 9: GREEKS

1. NUDE WARRIOR
2. ARCHER
3. SLINGER
4. WARRIOR AND CHILD
5. WARRIOR THROWING SPEAR
6. WARRIOR, STANDING, SWORD
7. WARRIOR, CASUAL SPEARMAN
8. GREEK IN TOGA
9. STANDARD BEARER
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STAGE 3: LANCERS

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2. TROOPER LINE
3. TROOPER GUARD
4. OFFICER GUARD
5. MTD. TROOPER, LINE
6. MTD. OFFICER, LINE
7. MTD. OFFICER, GUARD
8. MTD. TROOPER, GUARD

STAGE 7: 16th CENTURY

1. RITTER, FULLY ARMOURD
2. LANDSKNECHT, UN-ARMOURD
3. LANDSKNECHT, PART-ARMOURD
4. RITTER, PART-ARMOURD
5. LANDSKNECHT, UN-ARMOURD
6. LANDSKNECHT OFFICER
7. MOUNTED RITTER, FULLY ARMOURD
8. MOUNTED RITTER, PART-ARMOURD

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- 6 Russian Heavy Cavalry, 1812-15
- 7 French Carabinier Officer, 1810-15
- 8 French Carabinier Trooper, 1810-15
- 9 French General Cuirassiers, 1810-15
- 10 French Empress Dragoons, 1806-15
- 11 Empress Dragoons Trumpeter, 1806-15
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THE ROMFORD LINE

36 YEARS OF MODEL RAILWAY HISTORY

by Peter Dupen

SHORTLY AFTER the formation of the Romford Model Engineering Club in 1934 the members started on the construction of a $2\frac{1}{2}$ " gauge continuous passenger carrying track. This was completed in 1936 and became the first continuous club track in the country.

Once the delicate art of riding $2\frac{1}{2}$ " gauge passenger cars had been accomplished, speeds in excess of 10 m.p.h. were frequently achieved, and efficiency trials, similar in many respects to the present IMLEC, were run under the Henderson Competition rules.

The track was in regular use until it became impossible to hold meetings due to the Second World War, but limited use was made of the track until 1949 when it was eventually dismantled as the site was required for building purposes.



By this time it was apparent that a $2\frac{1}{2}$ " gauge track would no longer be suitable, as members were now building to $3\frac{1}{2}$ " and 5" gauges, so construction was commenced on an all steel, multi-gauge track of a design that when a suitable site was available it would only be necessary to bolt the track down to easily prepared concrete foundation posts.

A suitable site was eventually made available, thanks to some kind friends of the Club, and this track was opened in 1952 and was in constant use until 1960, when due to redevelopment of the Romford Town Centre the site was required for building a new shopping centre.

Negotiations for the present track site at the Ardleigh House Community Centre commenced in 1963 and after many set-backs construction began in 1964.

The present site was a challenge for railway construction, as not only was it a woodland area including many mature trees – all of which had to be preserved – it also included a small lake which severely restricted the available routes.

As all the track material was available from the previous track, it was necessary to make use of all the standard 50-ft. radius curves and therefore two 50-ft. radius semi-circles were marked out to clear all the large trees. Then by a series of reverse curves and straight sections these two semi-circles were joined together to provide a continuous track of 830-ft.

After the preliminary marking out on the site had been com-



General view of the Steaming Bays.

pleted, a detailed layout drawing of the track was prepared, and this is shown in diagram No. 1, provision having been made for a turntable to serve the steaming bays and also for a lift-out section to gain access to the centre of the track.

A more detailed survey was now made of the site, making use of the dimensions on the drawing in conjunction with a water tube level, the gradients on the drawing were arrived at; as the steepest was 1:100 down grade it was considered suitable for normal Club running.

As mentioned previously, most of the track material was available from our previous site and by removing the steel legs and braces we were left with 16-ft. sections in which the 5" gauge track was $1\frac{1}{4}$ " x $\frac{5}{16}$ " mild steel and the intermediate gauges $1\frac{1}{4}$ " x $\frac{1}{4}$ " mild steel, the whole being held together with $\frac{5}{16}$ " tie-rods and tubular spacers arranged to give $\frac{1}{8}$ " gauge widening on the 5" gauge curves. The other gauges were widened in proportion.

The superelevation selected for the 50-ft. radius curves was $\frac{1}{8}$ " which has since proved to be an excellent choice in view of the variable speed running that the track has to provide for, giving good riding at maximum speeds and still retaining a stable feeling at low speeds. At the entry and exit of all standard curves a transition spiral has been introduced, the length of this spiral being arranged to provide a gradient of approximately 1:350 on the rise of the outer rail from the level

The Track-Laying Expert at work.



Early construction work on the track.

Below, right: A 5 in. Gauge Saddle Tank on the completed track.

straight track to the $\frac{5}{16}$ " super-elevation in the curve. This gave a transition length of 106" and drawing No. 2 shows the layout of a typical transition spiral, also the gradual increase in spacer centres on the outer rail between the straight track and the standard curve, this was accomplished by means of a variable-centre drilling jig, the hole centres on the intermediate rails being drilled in a similar manner.

As the site for the track was of a more permanent nature it was decided to erect a more substantial track support structure than the previous metal legs, and diagram No. 3 shows a typical section, standard railway sleepers providing the main longitudinal beams. On the straight section the full 8' 6" length of sleeper was used, and on the curves these were cut in half to prevent excessive overhang of the track, and were supported on 8" x 8" x 8" hollow concrete blocks.

The method of construction was to accurately position the centre of each support either by direct measurement from the

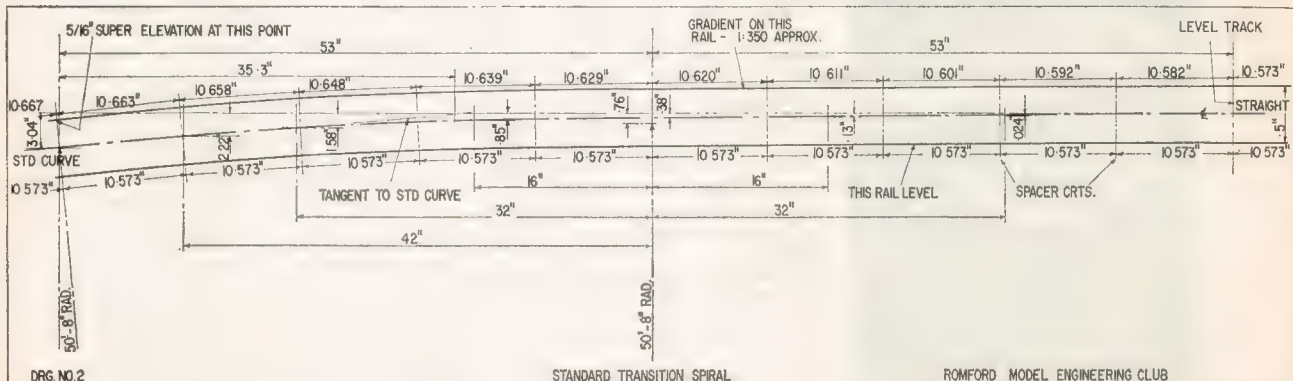
centre of the curve or off-sets according to site conditions and drive in a reinforcing rod at this point to a height of the underside of the main longitudinal sleeper. A hole about 2-ft. square and 6" deep was then excavated around the reinforcing rod for the foundation and filled with concrete. On top of the foundation a concrete plinth 12" square was formed using a hollow mould of such height that one or two concrete blocks set on top of the plinth would be brought level with the top of the reinforcing rod.

After the hollow blocks had been set up the longitudinal sleepers were correctly positioned on top, leaving a 2" gap between each sleeper. This gap and the hollow block were then filled with concrete. As an additional key a series of 6" nails was driven into the end of each sleeper before concreting. The superelevation on the curved sections was roughly achieved by canting each half sleeper a suitable degree, the final setting being obtained by packing the 9" x 1½" x 1" timber cross

sleepers as they were nailed in position on the top of the longitudinals, the pre-assembled rails sections being held down with suitable metal clips.

The steaming bay layout is of interest having been designed to ensure that locomotive changing can be accomplished in the minimum time. The actual bays consist of 7 lengths of elevated track at a convenient working height and of open structure to facilitate the dropping of fire and grates. Adequate working space is provided around these bays and each is fitted with a 12 v and 24 v supply for blowers.

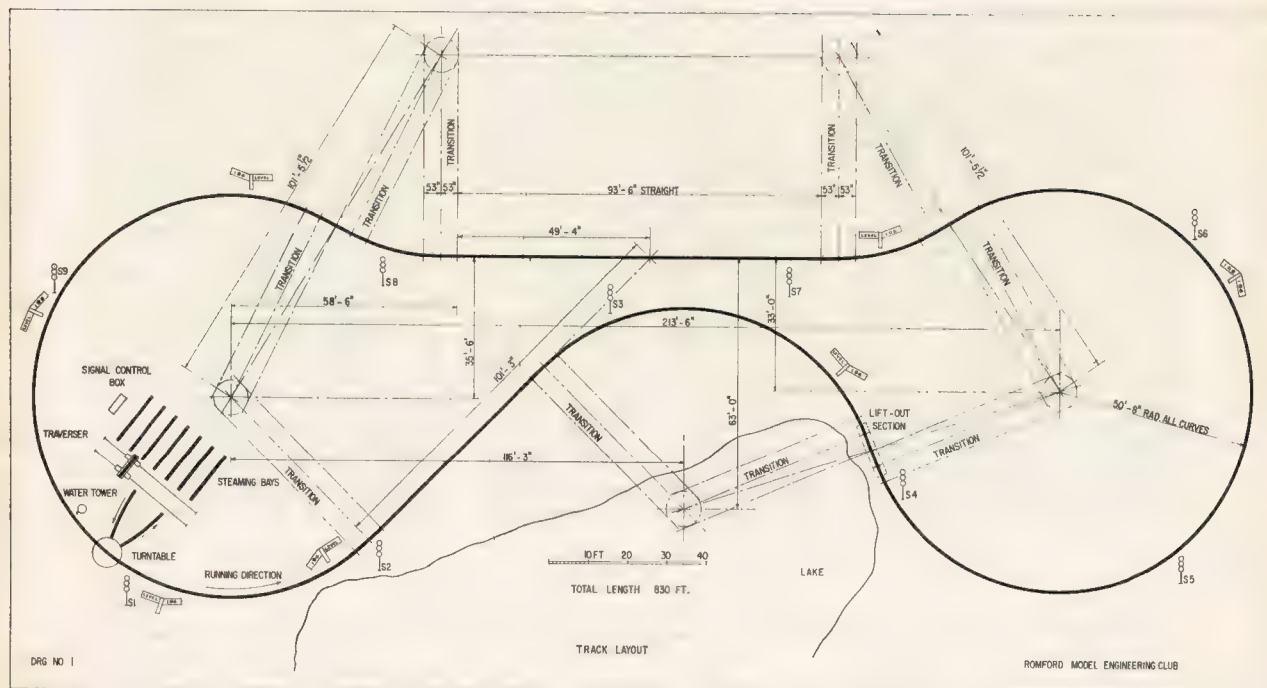
At one end of the 7 bays a loco traverser runs on rails of approximately 4-ft. gauge set flush with the ground and provided with a suitable length of multi-gauge track to line up with any of the bays. Therefore movement of locos from bay to bay is accomplished without interfering with track running.



DRG. NO. 2

STANDARD TRANSITION SPIRAL

ROMFORD MODEL ENGINEERING CLUB



On the opposite side of the traverser two connecting lines are arranged to serve the turntable which is fitted in the running track. One line is used for locos going on to the track and the other for those coming off, the procedure being that for the loco coming off, the track is positioned on the turntable and then rotated to line up with the out-going track. As soon as the loco has left the turntable this can then be further rotated to line up with the incoming rail, and a loco coming on to the track is brought into position with the minimum of delay.

The turntable is a fabricated steel structure from tube and

channel section, running on bronze bearings and fitted with positive stainless steel bolts, two each end, engaging in aluminium bushes, and arranged for central lever operation; the support for pivot centre section and track ends being a reinforced concrete beam, the top being at ground level. Track alignment is maintained by shimming at suitable points.

The steaming bay layout has proved to be entirely satisfactory in service and gives maximum track availability.

A water tower close to the track and supplied by mains water services locos on the track, while a further supply is available

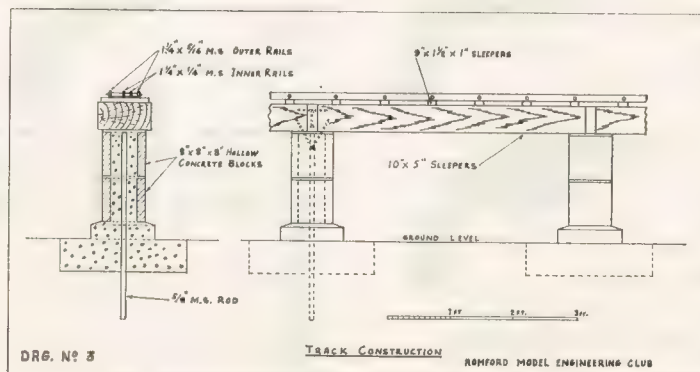
at the steaming bays.

The signalling system employed on our track is fully automatic in operation, providing drivers proceed in an anti-clockwise direction only. There are 9 three-aspect colour light signals, set at eye level. They are constructed from piping with a fabricated box on top housing the lights, colour filters and lenses. The cable is brought out through a length of piping, set at right angles to the main column, and the short lead is connected to a junction box fitted under the track. The signal columns drop into tubes sunk into the ground. At the end of each running day they are removed and stored in

WORKS DRAWINGS SHOWING DETAILS OF TRACK LAYOUT WITH CURVES, TRANSITION DETAILS, LOCATION OF SIGNALS, AND LEVELS.

Also STANDARD TRANSITION SPIRAL and DETAIL OF TRACK CONSTRUCTION

Drawings by Romford M.E.C.



our workshop. All the relays and power supplies are housed in a cast iron box, which is itself housed in a wooden box to eliminate condensation. The system works at 35 volts at present, with 24 volts for signal lighting. The signal relays have been made from ex G.P.O. polarised bell relays. Special relays control the station section, the Call On signal and the turntable. A removable mimic panel is mounted on the relay box. This panel shows the state of each signal, and the section which is occupied by each train. Also two switches are provided to alter the state of the station approach and exit signals. The signals are operated by the locomotive or truck wheels which short out an insulated section of track, which is connected to that particular section relay and the

relay controlling the section to the rear. To ensure low resistance contact conditions as the truck wheels pass over the track circuit sections, NICREX stainless steel was welded on to the running surface of the mild steel track section for a length of approximately 18". This short circuit operates these two relays, bringing the RED up on one and the AMBER up on the signal to the rear. The GREEN will only come on when the signal in front is at AMBER. The station section is a continuous track circuit in aluminium, connected to a relay that open circuits the station clearing circuit, no matter how many trains leave this section. The turntable operates another relay that puts all the station signals to RED and operates a banner signal. A banner signal

is mounted on the station approach signal, that automatically operates as a Call On when a train approaches the station. This banner will only operate when the station signal is at RED. Diodes are incorporated in the station circuitry, so that only certain relays will operate under certain conditions. The system works extremely well providing drivers obey all signals.

The track has been a joint effort of all the members and their friends, and we would like to take the opportunity of thanking them for all the work they have done over the eight years that have been spent on this project.

Further improvements and amenities will be added in the future, and we extend a warm welcome to all model loco builders to visit and run on our track.

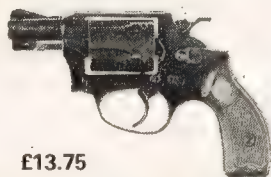
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Diam.		Length	Bore	List price	Our price
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3"	x	4"	x	$1\frac{1}{4}$ "	£18.80 £5.00

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$2\frac{1}{2}$ "	$\frac{1}{2}$ " approx.	$\frac{3}{8}$ "	235	£1.40	60p
3"	$\frac{1}{2}$ " approx.	$\frac{3}{8}$ "	510	£1.30	60p
3"	$\frac{3}{4}$ " approx.	1"	511	£1.42	50p

H.S.S. TWIST DRILLS ALL WITH $\frac{1}{2}$ " DIAM. STRAIGHT SHANK

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22 mm	Almost $\frac{7}{8}$ "	521	£2.36	80p
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30 mm	Approx. $1\frac{1}{16}$ "	524	£4.40	£1.30

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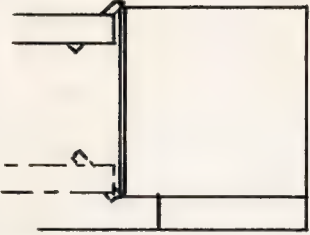
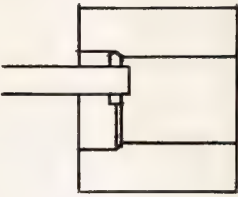
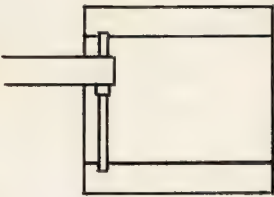
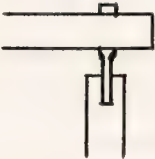
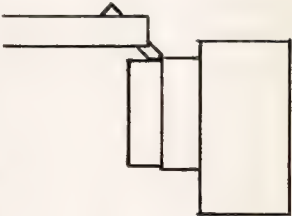
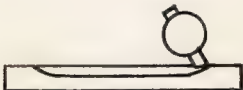
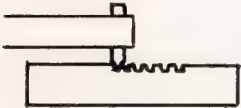
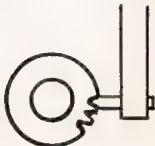

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 <p>RACK CUTTING</p>	 <p>GEAR CUTTING</p>	 <p>TREPPANNING</p>

Don't forget it uses simple, low-cost cutter bits, sharpened as readily as any lathe tool.
In kit form only at £5.95 + 25p postage (in U.K.). Delivery from stock.
Also the DORE 5 in machine vise kit. £4.50 + 37p postage.
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Visitors by appointment only, please. No weekend service

Trade Exhibitors

(continued from page 14)

Exhibition, the aim of N. Mole & Co. (Machine Tools) Ltd., will be to show a representative selection of lathes, drilling machines, shapers, milling machines, etc., all of which will be of particular interest to the model engineer. Also on display will be a selection of micro-meters, verniers, and engineers' small tools.

Visitors will be able to see machines and accessories by Myford, Boxford, Perfecto, Astra, Fobco and other manufacturers. There will also be some completely new machines on show for the first time.

N. Mole & Co. staff will be on hand to offer any assistance or advice required, and to give information regarding part exchanges and credit facilities. They will be on stands Nos. 4 and 5, where everyone will be assured of a warm welcome.

MAIN HALL — Stands Nos. 6 and 7

MYFORD LTD

Myford Ltd. have been manufacturing lathes for the model engineer for nearly 40 years, though almost from the inception a certain proportion of the machines have been used by industry, both for production and experimental purposes.

Amongst the points which have contributed to the world-wide popularity of Myford Lathes, may be mentioned the quality of the machines, the degree of interchangeability resulting in the ease with which replacement parts may be fitted and the very wide range of additional equipment which covers not only the conventional centre lathe range of accessories, but also milling equipment such as vertical slides, milling arbors, dividing attachments and so on and further, as far as the M17 and Super 7 are concerned, items of series production equipment such as lever-operated collet chuck, lever-operated and screw-operated part off slides and six-station turrets.

The most recent introduction is the ML10 Lathe, a machine of 3½ in. centre height with particularly strong model engineer appeal. As was anticipated there has been a very considerable interest and demand for this machine both at home and in many overseas markets.

Other Myford machines include a range of precision cylindrical grinding machines, both manually- and hydraulically operated. The latter include a plunge feed grinder with automatic cycle which can be used either with or without electronic sizing equipment. The latest addition to the grinders is a special machine for grinding flat, concave or convex discs. This has an automatic grinding cycle and a separate automatic wheel dressing cycle. It will be appreciated that the small Myford centre lathes have gained considerably from the fact that they are manufactured in the same plant alongside these machines.

The Myford exhibits will include ML7, Super 7 and ML10 Metal Turning Lathes, and a range of additional

equipment. Machines on display will be fitted with the Tri-Leva speed selector and the quick change gear box. Demonstrations will be taking place throughout the exhibition.

MAIN HALL — Stand No. 8

HISTOREX AGENTS

Once more Historex Agents of 3 Castle Street, Dover will have the pleasure of exhibiting their products at the Model Engineer Exhibition, and they look forward to meeting their many old customers and to making many new ones. Apart from the usual 'mouth watering' display of magnificently-painted models on their sales stand, Historex, the parent company in France, will be sending over the magnificent diorama known as the 'Revue des Tuilleries'. This diorama was made for the Paris exhibition 'The Most Beautiful Models in the World' in 1969 and represents over 2,000 hours of work. The whole project conceived by Monsieur Rene Gillet and Monsieur Eugene Lelievre shows Napoleon and his general staff reviewing the Guard at the Arc de Triomphe du Carrousel. The troops are on a moving belt offering the spectators a constantly animated display. The background shows the Tuilleries palace and there are more than 300 figures on the display. We know that all visitors to the Exhibition will find this a most interesting attraction.

On the Historex Agents sales stand there will be a large assortment of kits, books, brushes, tools, etc. Advice will be given on construction and painting problems and time and space permitting we hope to be able to offer demonstrations of face and horse painting techniques. We occasionally suffer from a slight sense of guilt, in so much that when a customer buys his first Historex kit it is like giving him a 'habit-forming drug'. We hope that many Exhibition visitors will become Historex addicts.

MAIN HALL — Stand No. 9

TRACTION ENGINE ENTERPRISES

A regular feature of the Model Engineer Exhibition is the ever-popular Traction Engine Enterprises Stand. Once again the company will have a large selection of Records, Books and Models on Railways, Traction Engines, Trams, Fairground and Street Organs, Canals, etc., 'Vintage Steam' and 'Old Motor', and a large range of Colour Slides, Framed Prints and other enthusiasts' items will also be on sale.

There will also be a very large display of die-cast collectors' models on show. Rare Lesney, Dinky, Charbens, Benbros, Morestone, Budgie, Corgie and Timpo die-cast and Triang Tin Plate Models will be on sale.

Also represented on the stand will be Traction Engine Enterprises' associate company M. E. SPECIALIST PUBLICATION SUPPLIES, the leading supplier of bound, unbound and loose issues of *Model Engineer* and *English Mechanics* and a large range of Model Engineering books. Rare Model Engineering books now out of print will also be on sale.

A very large range of *Model Engineer* Indexes which have recently been reprinted by the company will be
(continued on page 40)

MINIATURE PRECISION DRILL



This small, miniaturised drill (125 mm. in length) which is extremely light (160 g.) has been designed for comfortable holding in the hand so enabling extremely precise work to be carried out (drilling holes of some tenths of a millimetre).

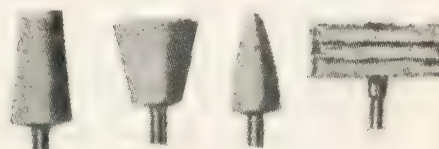
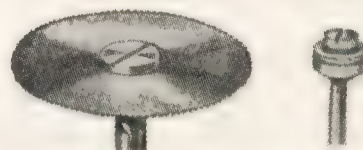
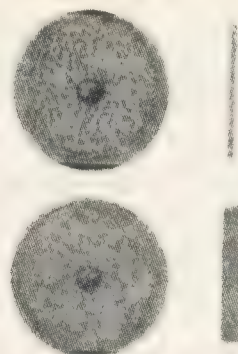
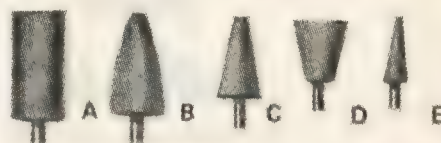
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- etc. . . .

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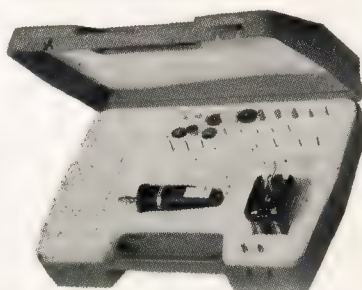
- WOOD
- METAL
- PLASTICS
- CRYSTALS
- GLASS & GLASS FIBRE
- etc. . . .



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- Five twist drills
- Five blade drills
- Seven different types of milling cutters
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- One abrasive wheel
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- Two felt polishers
- One connector for two 4.5V batteries



See It Demonstrated on Stand 35

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Trade enquiries welcome - complete price lists and catalogues available on request.



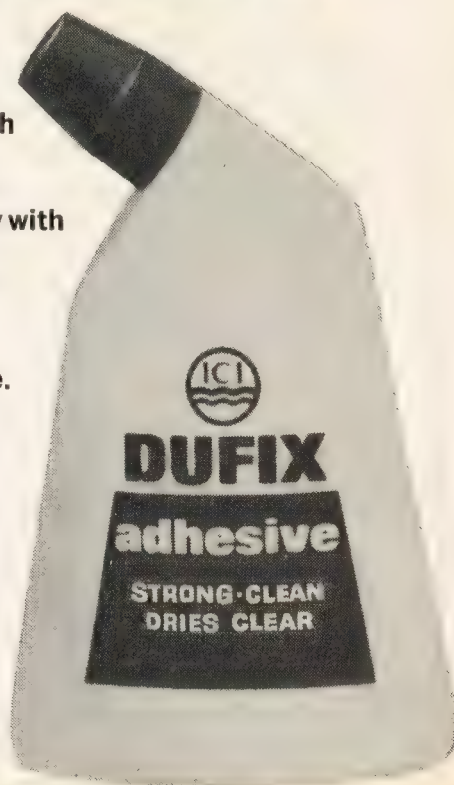
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DUFIX

Every modelmaker should have some.

Model Traction Engines Today

by W. J. 'Bill' Hughes



A 1½ in. scale Allchin traction engine hauling builder Al Park in Calgary, Canada.

TO MANY PEOPLE VISITING THE *Model Engineer* Exhibition for the first time, the wonderful craftsmanship displayed is a revelation. To someone new to the game, it just does not seem possible that 'ordinary' men – and the too infrequent woman – can work to such standards of precision and finish.

Nevertheless it is often true that the award-winners *have* been built by individuals who have had no formal engineering training at all, who have a minimum of tools and equipment, and who fre-

quently work in a small workshop in the back garden. Let no visitor to the Exhibition think that he or she is not capable of such work, for we all had to start sometime. The important thing is to make that start!

My present brief is to try to explain to such a visitor, who might be struck particularly with the idea of building a model traction engine, just what the position is in this exciting field. At the time of writing I have no idea what traction engine models will be on show, but almost certainly there will be one or more examples of the 1½ inch scale Allchin traction engine *Royal Chester*.

If this engine should take your fancy, then you are fortunate, in that instructions for building this particular model are currently being published in serial form in *Model Engineer*. They commenced only recently, and will be very detailed as to methods of construction. Also they will be well illustrated by drawings and photographs, many of the latter being specially taken in the author's own workshop. Sixteen large sheets of drawings show all the individual parts in detail, even down to the small components of the padlock which secures the lid of the toolbox situated below the running board.

The Allchin has been built in large numbers already, in many cases by beginners, and, in fact, on at least one occasion such a beginner has taken both the Championship Trophy and the Aveling-Barford Trophy at the *Model Engineer* Exhibition!

This particular scale is very popular for many reasons. It is not too heavy for one man to handle alone, and every single component can be machined suc-

cessfully on the 3½ inch centres lathe which is the most usual size in the amateur workshop. The firebox is large enough to make plenty of steam, so that serious passenger-hauling can be undertaken, and it does not require too much storage space when not in use.

Going Smaller?

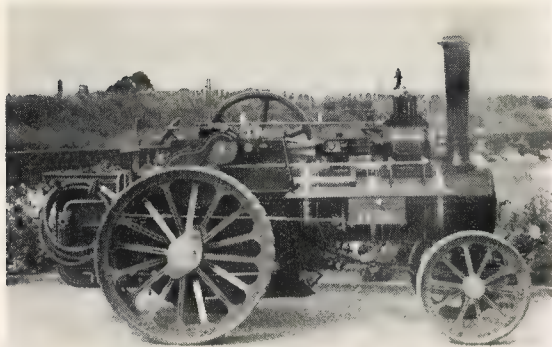
On the other hand, perhaps one may fancy something smaller, possibly because only a smaller lathe is available, or possibly as a personal preference. In this case, only one published design is available, which is L. C. Mason's 'Minnie' in 1 inch scale. The instructions for building this are available in book form, and, as with the Allchin, castings are obtainable for the major parts. They do have to be machined by the builder, of course, but anyone with a modicum of common sense can do this!

'Minnie' conforms to general traction-engine practice very largely, but is a free-lance design overall – that is, she is not a scale replica of any single prototype, which the Allchin is. It must be said, too, that in this scale the firebox capacity is comparatively limited, and this, together with the limited adhesive weight, renders impossible the task of *sustained* live-passenger hauling.

Nevertheless this is a nice model which would give one great satisfaction to build and to run, and its possibilities should not be ignored when considering what to build.

From above, the compound cylinders and motion and the three-speed gear of S. N. Green's 1½ in. scale Fowler road locomotive.





One-third of full size, the Silver Medal - winning Allchin - built by G. E. Stubbs of Bunny, Notts.

Yet another possibility if a small-scale model is preferred for any reason, is to scale down an existing design such as the Allchin: that is to take all the dimensions of the $1\frac{1}{2}$ inch scale drawings and to reduce them in the ratio of say 2 to 3 for a 1 inch scale model, or of 1 to 2 for a $\frac{3}{4}$ inch scale one. And the latter is just what Miss Cherry Hinds did when she built what is one of the finest traction engine models of all time - her $\frac{3}{4}$ inch scale Allchin *Royal Chester* which became Champion a few years ago.

Incidentally, which proves that this was no fluke, she went on to produce two further 'champions' - a Merryweather self-propelled fire engine and an Aveling steam roller, both in $\frac{3}{4}$ inch scale. The Aveling also won the Duke of Edinburgh Trophy.

Here again, of course, whilst such a model can be built to work, and work well, it has its limitations. Moreover, some of the components become so small as to require great patience and skill in the making.

Larger Scales

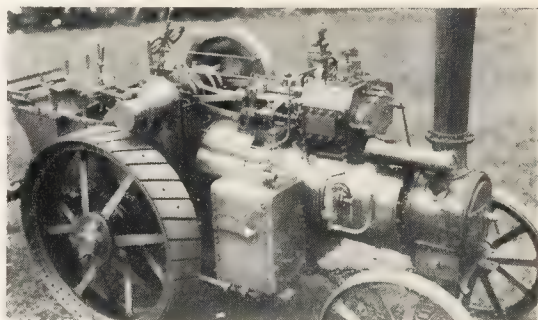
The past few years have seen quite a number of model traction engines built in larger scales, from 2 inches to the foot to 3 inches and even $4\frac{1}{2}$ inches (rather larger than one-third of full size, of course).

Outstanding examples of these have been Ron Heugh's 2 inch scale Foster traction engine which was Champion at the last *Model Engineer* Exhibition, and Len Crane's 3 inch scale Burrell which won the Duke of Edinburgh Trophy at that time, having been Champion in the previous year.

Ron Heugh built his Foster from his own drawings, made by measuring up from the full-sized

engine which was not too far from his home. Bill Ogden of Oldham similarly built the fine 'scenic' showman's Burrell illustrated, by measuring up Tom Albert's full-size locomotive *His*

This 2 in. scale Marshall five-ton tractor won major awards for the late W. Jarvis of Sandbach, Cheshire.



Lordship. This method has considerable appeal to the model engineer who wants something 'different', but it could not fairly be recommended to a beginner at the art.

The 3 inch scale Burrell was built by Len Crane to drawings and castings supplied by one of our advertisers, but with one or two alterations and additions. Since it was built it has earned several hundred pounds for charity, in passenger-hauling at rallies and other events, for which its size and weight are advantageous, of course.

Drawings and castings are available for several large models in various scales, including in 2 inch scale a Fowler showman's engine and Fowler ploughing engines, in 3 inch scale the Burrell design already mentioned, and in $4\frac{1}{2}$ inch scale a Burrell traction engine and a Wallis and Steevens 'Simplicity' steam roller.

Instructions for building the steam ploughing engines were

published a few years ago in *Model Engineer*, but with the others a certain amount of knowledge would be necessary before they could be tackled. (Here, perhaps I may be permitted to blow my own trumpet a little, in mentioning that my book 'Traction Engines Worth Modelling' would be a boon to any beginner.)

For the larger sizes, as with the smaller ones, it is quite feasible to re-scale from an existing design. To quote the Allchin design again, this has been built in all sizes from the $\frac{3}{4}$ inch scale example by Miss Hinds up to a 4 inch scale (one-third of full size) by G. E. Stubbs. This latter, which won a silver medal a few years ago, has hauled quite easily a 3-ton lorry, and it treats a truck-load of passengers with contempt.

But although the prospect of possessing such an engine - or even a 3 inch scale one - may be attractive at first sight, a great deal of thought is necessary before undertaking the task of building one.

Firstly, a large lathe would be needed and this means heavy expense even for a second-hand one. A milling machine and/or shaper would be desirable too, adding even more to the expense. Even so, it might be necessary to 'put out' the machining of such parts as the hind wheel rims, and this too, is expensive.

Next, one's machines must be housed adequately, which would involve a comparatively large building with the attendant larger expense for rates, heating, and lighting. Extra space too, would be needed for the erection or assembly of the parts of a large model, and for its storage when completed. Two or three such models could well drive a wife from hearth and home!

Transport of a big model is a problem too, of course. Where one could lift unaided a $1\frac{1}{2}$ inch scale traction engine into the boot of the average car, anything larger needs either a van, a pick-up, or a special trailer, plus special means for loading up the model.

Different Types

Another point which requires consideration by a would-be traction engine builder is the type or category of engine to be built. Of them all the single-cylinder general-purpose engine, such as the Allchin, is the least complicated and has the fewest moving parts. It is therefore the easiest and quickest to build, other factors being equal, and undoubtedly the best for the beginner to tackle.

As the name 'general purpose' implies, this type of engine was used largely for such jobs as threshing, and it was little used on the roads except to haul its attendant machinery from place to place.

For road haulage proper there were two chief classes of engine, the light steam tractor and the heavy road locomotive. The tractor was usually built to a five-

An extra special category of road locomotive is, of course, the showman's engine with its dynamo, its plentiful polished brass, and its long canopy over all.

Because of the greater need for economy in consumption of coal and water in road haulage work, the steam tractors and road locomotives (including showmen's engines) almost invariably were compound engines. To the modeller this means the added complication of two cylinders and two sets of motion as against the single cylinder of the agricultural engine, and usually three speed gear instead of two speed. Other 'extras' include a second water tank (the so-called belly tank) and the canopy.

All of these things mean that sober thought should be taken by the would-be modeller before coming to a decision about his future activities. Faced with a new and exciting challenge to one's capabilities, it is perhaps rather easy for a beginner to be a bit over-optimistic. Depending on the spare time available, and on his adaptability, he could expect to spend from eighteen months up to three years on building say the single cylinder Allchin traction engine – though

SHORT BOOK LIST

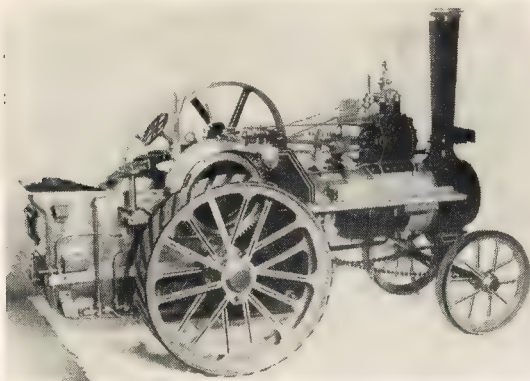
Burrell's Showman's Road Locomotives; Ploughing By Steam; Modern Manual For Drivers Of Steam Road Vehicles; Scale Model Traction Engine Building Introducing 'Minnie'; Ploughing Engines At Work; Steam Up!; A Gallery Of Old Timers; Traction Engine Pictures; Traction Engines On Parade; Garretts of Leiston.

Above published by M.A.P. Other excellent books on the subject by David & Charles, Hugh Evelyn and others.

it has been built in under the year.

Hence my personal advice to someone new to the hobby would be to shelve for the time being any ambition to build a showman's engine, however much it might take his fancy. Take a well-tryed design for which drawings and castings (and preferably instructions) are available, and cut your teeth on that. The odd thing or two will go wrong – even the most experienced model engineer makes parts which go straight into the scrap box! But one learns by one's mistakes and they won't be many in any case.

One thing is pretty sure – that you will enjoy building the model, and that the first time you have her in steam will be a proud moment indeed. And who knows – perhaps in 1975 or 1976 it might be your own engine on show at the *Model Engineer Exhibition* which will be giving inspiration to someone who as yet does not know what he is missing!

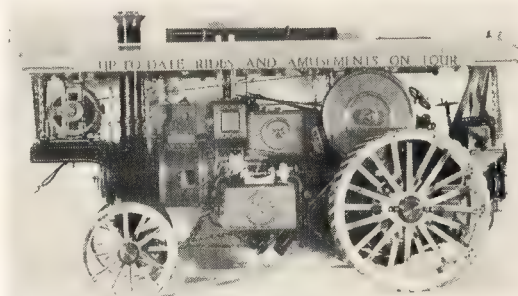


Len Crane's 3 in. scale Burrell engine seen at a provincial exhibition before full completion.

ton weight limit, and used in such work as hauling pantech-nicons. Because of its comparatively light weight and small dimensions, a 2 inch scale model of a steam tractor is approximately equal in size to a $1\frac{1}{2}$ inch scale general-purpose engine.

The road locomotive on the other hand was a heavy machine built for sustained heavy haulage on the roads, with, for example, hind wheels of 7 ft. diameter instead of 5 ft. 6 in. or 5 ft. 9 in.

A fine Burrell 'scenic' showman's engine built in $1\frac{1}{2}$ in. scale from a full-sized prototype by W. Ogden of Oldham.



Trade Exhibitors

(continued from page 33)

available to enable enthusiasts to complete their collections and volumes.

Another service offered by the company will be the new M. E. Binding Service. Volumes are bound in a textured royal blue cloth with gold blocking in the traditional M. E. style. These bindings are of a far higher quality than previously available to enthusiasts.

A complete *Model Engineer* bound library owned by the company will be on display as a tribute to *Model Engineer* — one of the oldest specialist magazines. Also on sale this year will be our unique Fine Art Calendars for 1973. A choice of four subjects is available: - Burrell Showmans Engine 'Lord Lascelles'; L.N.E.R. A14 Pacific No. 4468 'Mallard'; 1911 Rolls-Royce Veteran Car; Gloster Gamecock 1; Reproductions of G. Coulson's beautifully-detailed paintings in full colour.

MAIN HALL — Stands Nos. 10-13

MODEL HOBBY CONSORTIUM

Model Hobby Consortium speaks for itself: - 'One stand? Two stands? Three stands? Four stands? Quite right, this year your lovable, your only, your one and only, M-H-C has acquired for you, four Fabulous, Gigantic, Stupendous stands for our yearly extravaganza. We couldn't get anymore, something to do with the Monopoly's Commission (no dear, it's not a game). At fantastic expense we have transported, from the backwaters of S.E.13, the best selection of plastic kits you ever dared gaze upon, offered to you at ridiculously cheap prices, last year £13 kits were thrown at customers for £6! ! ! If you missed last year's modelling "Sale of the Century", shame on you! But do come along this time, a word of warning, come early and wear a suit of armour, it may help you push through to see our plastic jungle. There will, of course, be all the latest kits available, so when you've finished there, fight your way to the next great M-H-C stand where you will find, again at colossal expense, the most ramshackle hole of our stands, but don't despair, it will be jammed full of Model Boat kits, bits and accessories, models by all the well-known manufacturers, accessories will include props, shafts, couplings, tanks, pipes (peace?), silencers, engines, Radio Control, in fact the lot, so if you wish to become involved in this fine and gentlemanly hobby come and see us. By this time you should be stone broke, suffering from exhaustion and weighed down by bags full of goodies, but don't think you have escaped yet. Our soldier stand will be waiting so crawl along to see the best Militaria Display ever to hit London. Our staff will be hiding away but the necessary £1 note will bring them to life to show the fabulous array of 20, 25, 54, 77 mm. figures, by the best manufacturers.

'Wargamers and collectors will delight at the range available. As well as figures there will be rules, dice, etc., plus the Greek and Nav Warships, the stand itself will

be something extraordinary, so do come along to see us, our figures (nothing personal), our dioramas, our piles of goodies.'

MAIN HALL — Stands Nos. 14, 15 and 16

BEATTIES OF LONDON LIMITED

Beatties of London, leaders in the model business for very many years, are once again taking the lead. In addition to complying with the Price Freeze as outlined by the Prime Minister, Beatties will be offering, during the Freeze period which will include the period of the Model Engineer Exhibition, large discounts on selected items from their huge range of products, commencing on the publication date of this Magazine.

They will also be showing many new items.

Beatties will be showing for the first time a complete new range of Scenic Accessories suitable for OO and HO Railways.

The main features on show for this year's Exhibition will be Rivarossi OO/HO Railways, Atlas N. Gauge Railways, LGB Gauge 1 Narrow Gauge Railways, Marklin Z Gauge Railways, Fleischmann OO/HO and N Gauge Railways, Wiking Model Railway Accessories, Heljan OO/HO and N Gauge Building Kits, Mamod and Willesco Steam Engines.

MAIN HALL — Stand No. 17

PLAISTOW PICTORIAL

Plaistow Pictorial will be selling and displaying their complete range of colour and black and white prints. Recent additions to the range are 30 x 40 colour prints of the Spitfire, Hurricane, Lancaster, Mosquito and The Red Arrows over Niagara Falls. Also come and see the new 'Famous Front Pages' which recall historic newspaper front pages. The latest edition of *Aviation News* on sale.

MAIN HALL — Stand No. 18

STUDIOLITH LTD

Studiolith Ltd. comes to the Seymour Hall exhibiting the range of correct scale model railway components for 4 mm./ft. scale marketed under the Registered Trade Mark 'PROTOFOUR'. This set of standards, which is considered to be the closest to prototype in 4 mm. scale, is a system in itself and example of tools, gauges, templates and track materials for the construction of realistic track to the correct gauge of 18.83 mm. will be shown.

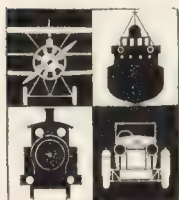
A display of the range of wheels now available will be shown which includes five types of Coach and Wagon, eight types of Bogie and Tender and eight diameters of Locomotive Driving Wheels (with a further five types in the first range).

A number of components designed by the M.R.S.G. can be used by anyone in 4 mm. scale. These include the correct section nickel-silver Bullhead Rail, Ballast, Baseboard Joiners and the scale three-link, Couplings with the intriguing Magnetic Shunters' Pole.

For planning the layout, the self-adhesive PROTOFOUR 1 mm. Planning Templates are used together with the appropriate Scale Index.

Further exhibits include the range of 'Mike's Models' accessories, Anbrico castings, Cotswold fittings, Mopok kits, the George Alan series and L.F.C. Nameplates.

(continued on page 44)



MODEL ENGINEER EXHIBITION 1972-73

COMPETITION & LOAN ENTRIES

CLASS DUKE OF EDINBURGH

- | Type | Name |
|---|--|
| 1 Horizontal cross compound condensing engine Corliss valve gear. | T. Smith
(Accrington, Lancs.) |
| 2 Allchin traction engine. | H. Worthington
(Buxton, Derbyshire) |
| 3 5 in. gauge M.R. 4.4.0 No. 999 | P. J. Dupen
(Essex) |

CLASS A1. Locomotives to any L.B.S.C. design 2½ in. gauge and over. (No entries received at time of going to press)

CLASS A. Locomotives, 2½ in. gauge and over.

- | Type | Name |
|--|---|
| 1 Freelance 'Rocket' type 5 in. gauge loco. | L. Disney
(Bushey, Herts.) |
| 2 London, Brighton & South Coast Railway 'Terrier'. (M. Evans design). | G. E. Hobbs
(Windsor, Berks.) |
| 3 'City of Truro', 5 in. gauge. | P. W. Luckhurst
(Flintshire, N. Wales) |
| 4 'Tich' type with variations. | L. J. May
(Harlow, Essex) |
| 5 5 in. gauge Class A4 'Nigel Gresley'. | A. Nash
(Chellaston, Derby) |
| 6 'City of Truro' G.W.R. | A. G. Peacock
(Wroxham, Norfolk) |
| 7 'Flying Scotsman' 2½ in. gauge. | R. J. Penn
(Sterchley, Birmingham) |
| 8 3½ in. gauge 'Hymek'. | L. P. Purple
(Lee, SE12 8AN) |
| 9 Adams T3 L.S.W.R. locomotive No. 563. | H. W. Webb
(Claygate, Surrey) |
| 10 5 in. gauge G.W.R. 'Terrier' No. 5. | R. Youldon
(Coldean, Brighton) |
| 11 B1 5 in. gauge 4-6-0 'Blackbuck' 61006 | T. Pratt
(Basildon, Essex) |
| 12 B1 5 in. gauge 4-6-0 'Blackbuck' 61006 | P. T. Banks
(Billericay, Essex) |
| 13 Working Scale Model N.E. Loco & Tender Class VO/9. | R. C. Mundy
(Okehampton, Devon) |

CLASS B. Locomotives, in gauge I and 0.

- | Type | Name |
|--------------------------------|--|
| 1 G.W.R. King James I tender. | J. S. Bremner
(Southwick, Sussex) |
| 2 'Green Arrow'. | D. Brown
(Gainsborough, Lincs.) |
| 3 M.&G.N.R. Class 'C' Rebuild. | N. G. Parkinson, M.B.E.,
R.N.R.
(London W14 9AX) |

CLASS BA. Locomotives, in gauges smaller than 0.

- | Type | Name |
|---|---|
| 1 6026 'King John' 4-6-0 G.W.R. Locomotive. | W. D. Capjon
(Hastings) |
| 2 Passenger Car Transfer Loco - Diesel. | Lt. Col. G. M. Edye, J.P.
(Ballaugh, I.O.M.) |
| 3 L.M.S. Class 5 Steam Outline loco. | Lt. Col. G. M. Edye, J.P.
(Ballaugh, I.O.M.) |

This Exhibition is certified by the Board of Trade for the purpose of Section 51 (2) of the Patents Act, 1949, and of Section 6 (2) of the Registered Designs Act, 1949.

It is necessary that Exhibitors wishing to avail themselves of the protection afforded should make formal application for the grant of a patent or the registration of a design, as the case may be, not later than six months after the opening of the Exhibition.

AWARDS

The cups and medals will be forwarded to the successful competitors as early as possible after the close of the Exhibition, when names have been engraved and diplomas signed.

The new Edgar Westbury Memorial Challenge Trophy presented by the Society of Model & Experimental Engineers.



PRIZE POOL ALLOCATION

Classes attracting six or more entries will enjoy prizes to value of 1st £5; 2nd £3; 3rd £1. With over 12 entries 1st £7; 2nd £4; 3rd £2; 4th £1. Classes under six will have 1st and 2nd only, or at the discretion of the judges may be amalgamated with other classes, or given a discretionary award only. Prizes may take the form of Vouchers, Cash, Replica Trophies (for Challenge Trophy winners) or Championship Trophies.

NATIONAL AWARDS

A number of magnificent trophies have been donated in the past for competition in "Model Engineer" Exhibitions. These cups and trophies are awarded on the occasion of M.E. Exhibitions. Winners hold their trophy for one year only.

In some cases additional prizes in the form of vouchers for goods from firms exhibiting at the Exhibition or advertising in the Souvenir Catalogue may also be awarded.

JUDGING

Judging will take place immediately before the Exhibition opens. Printed results should be available by the day following and will be inserted in catalogues obtained at the show, or will be available on demand by visitors.

***SILVER AND BRONZE MEDALS**

Offered in all classes, provided the work is considered by the judges to be of medal standard. The medals will be awarded on the quality of individual models, and not on any placing of the entries in order of merit in a class.

*Silver and bronze coloured.

DIPLOMAS

The judges are empowered to award diplomas in recognition of special merit in all classes at their discretion.

CERTIFICATES

Certificates of entry are given to the owner of every model exhibited in the Competition sections.

THE AVELING-BARFORD TROPHY

Presented by the directors of Aveling-Barford Ltd., for annual award to the best working model traction engine, road roller or steam wagon.

THE BOWYER-LOWE CHALLENGE CUP

Donated by Mr. A. E. Bowyer-Lowe to be awarded for the best example of craftsmanship and design in the Tools and Workshop Appliances class.

THE BRADBURY-WINTER MEMORIAL CHALLENGE CUP

Donated by Mrs. Bradbury-Winter and a number of friends, to be awarded annually, at the discretion of the judges, for the most outstanding example of amateur mechanical craftsmanship.

THE CREBBIN MEMORIAL CUP

Donated by certain friends of the late Mr. J. C. Crebbin. To be awarded for the best entry in the Locomotive, General Engineering and Mechanically-propelled Road Vehicles Classes.

THE H. V. EVANS TROPHY

Donated by the Thames Shiplovers' Society in honour of its founder, Mr. H. V. Evans. To be awarded annually at the discretion of the judges for research and/or presentation of a ship model.

J. N. MASKELYNE MEMORIAL TROPHY
To be awarded, at the discretion of the judges, for the model locomotive, in any scale, which does most to promote fidelity of design.

THE EXIDE AND DRYDEX CHALLENGE CUP

Donated by the Directors of Chloride Batteries Ltd., for annual award. To be awarded at the discretion of the judges to the best model incorporating a battery, entered in any section.

CLASS CA. Rolling Stock and Accessories. Gauges smaller than O.

Type	Name
1 S.R. Shock Absorbing Wagon.	T. K. Dibley (Berkhampstead, Herts.)
2 Four L.M.S. Railway Coaches, Six Wagons. Two Vans.	M. H. Golder (Nr. Farnborough, Hants)

CLASS D. Steam and working ships of any period (Non-working).

Type	Name
1 H.M.S. Sheffield, City Class Cruiser, Waterline Model.	E. R. Dyke (Wivenhoe, Essex)
2 Marine 35 Stern Trawler.	W. R. Hart (Northampton)
3 55 ft. Transom Stern Seine Net Fishing Boat.	W. R. Hart (Northampton)
4 Scale H.M.S. 'Hermes' - 1970.	G. L. Y. Hitch (Woking, Surrey)
5 R.M.S. 'King Orry'.	S. R. C. Walmsley (Freshfield, Nr. L'pool)
6 German Beaver class one-man Submarine.	G. M. Waugh (Sunderland, Co. Durham)
7 Oil Tanker.	G. M. Waugh (Sunderland, Co. Durham)
8 Waterline Battleship 'Schleswig Holstein'.	H. Woodman (London SW14 7NL)

CLASS E. Power Driven Scale Models (Complete with power plant).

Type	Name
1 Scale Cabin Cruiser.	D. A. Adam (Woking, Surrey)
2 Crusader.	A. R. Bird (Telford, Shropshire)
3 Clyde Puffer, 'Sealight'.	P. Blake (Corringham, Essex)
4 Lowestoft Drifter-Trawler.	M. T. Box (Hove, Sussex)
5 Warship, H.M.S. 'Diamond'.	D. Campbell (Battersea, London)
6 Paddle Steamer.	D. Campbell (Battersea, London)
7 Vosper R.T.T.L.	D. Campbell (Battersea, London)
8 Electrically propelled radio-controlled 'Sun' tug.	W. D. Capjon (Hastings, Sussex)
9 M.V. 'Northumberland'.	D. Carton (Litherland, Liverpool)
10 Thornycroft Range Safety Launch.	K. F. Clover (Watford, Herts.)
11 'Cervia' Thames Tug.	K. F. Clover (Watford, Herts.)
12 Tug, 'Sun XXVII'.	D. R. Davidson (Brentwood, Essex)
13 'Kaiser Wilhelm II', North Atlantic Liner.	H. Disney (Bushey, Herts.)
14 H.M.S. 'Cicala', Shallow Draught Gunboat.	Capt. R. E. Gardiner (Sevenoaks)
15 Paddle Tug 'Strongbow'.	R. W. Page (Grays, Essex)
16 1st Class Torpedo Boat of 1885.	T. D. Rees (London SW18)
17 Coaster.	W. H. Stubbs (Chiswick W4)
18 Thames Motor Tug 'Sun'.	A. J. C. Waller (Watford, Herts.)
19 A 1944 French Corvette, H.M.S. 'Harlech Castle'.	J. Bird (Woolston, S'ton)
20 R/C Rowing Boat.	J. Warner (Sheffield, Beds.)
21 Huntsman Fast Launch	W. M. Winstanley (Colwyn Bay)

CLASS F. Sailing Ships of any period. (Non-working).

Type	Name
1 'Pirat', Bermudan rigged Ocean Racing Vessel.	D. L. Bowtell (Ware, Herts.)
2 English 50-gun ship of 1733.	D. A. Brogden (Nuneaton, Warks.)
3 'Statsraad Lemukyl', Norwegian Boys' Training Ship.	D. J. Capon (Erith, Kent)
4 First rate 18th Century Ship.	G. Compiani (Stevenage, Herts.)
5 Standard plastic kits. Revell, Airfix.	F. D. Crump (Dorking, Surrey)
6 Lowestoft Herring Drifter 'Strive' (c.1898).	T. W. Dickey (Co. Antrim, N. Ireland)
7 Trading Galleys of Hatshepsut.	F. R. Robb (London SW1)
8 Southwold Beach Yawl.	E. C. Freeston (Herstmonceux, Sx.)
9 17th Century Sixth Rater.	Capt. K. M. Gosling (Barnham, Sussex)
10 U.S.S. 'Constitution'.	P. W. Ladyman (Harrow, Middx.)
11 Grand Banks Fishing Schooner 'Bluenose'.	C. F. R. Purchase (Chichester, Sussex)
12 Schooner.	Ross (Wembley)
13 Revenge Cutter U.S.S. 'Washing-ton' 1837.	J. B. Walton (Portbury, Bristol)
14 Yacht 1690.	R. Wardale (Bognor Regis, Sussex)
15 'Royal William', 100 guns of 1719.	J. L. Facer (Albright, Nr. Wolverhampton)

CLASS G. Working Yachts and Sailing Ships

Type	Name
1 10-rater Yacht.	O. R. Clements (Colchester, Essex)
2 R/C Model Yacht.	T. W. Rowe (Old Bursledon, Hants.)

CLASS I. Miniatures. Length of hull not to exceed 9 in. for 1/8 in. to 1 ft. scale or larger; 10 in. for 1/16 in. scale; 12 in. for 1/25 in. scale; 15 in. for 1/32 in. scale. No limit for smaller scales.

Type	Name
1 'Le Protecteur', French third rate, 64-gun Ship of the Line.	D. Hunnisett (Aylesbury, Bucks.)
2 'Mayflower'.	D. Hunnisett (Aylesbury, Bucks.)
3 The 'Revenge' 1577.	R. Ripley (Billericay, Essex)
4 Sixth rate 1670 (Hull).	A. P. Smith (London E12)
5 H.M.S. 'Hood'.	K. M. Smythe (Notting Hill, London)
6 'Santa Maria'.	J. A. Evans (Thornton Heath, Surrey)
7 Opium Clipper 'Nymph II'.	J. A. Evans (Thornton, Heath, Surrey)

CLASS J. General Engineering Models (including stationary and Marine Engines).

Type	Name
1 Stuart 'Star', Propeller and Shaft.	R. Dunk (Rosemount, Aberdeen)
2 Dynamos.	C. A. Holt (London SW7)
3 Beam Engine (McNaught Compound).	E. D. Jakins (Kettering, Northants)
4 Vertical Hot Air Engine.	B. Knight (Streatham SW16)

THE "BRISTOL" CHALLENGE CUP
Donated by the Bristol Aircraft Company. To be awarded annually for the best model of a "Bristol" aircraft.

THE MALTBY TROPHY
Donated by Mr. M. Maltby to be open for competition by Ship Model Societies exhibiting at the Model Engineer Exhibition.

THE MAZE CHALLENGE CUP
Donated by Sir Frederick Maze, K.C.M.G., K.B.E., to be awarded annually for the best model of a sailing ship (pre-1820) or of an Oriental sailing craft of any period.

THE U.S.S.R. CENTRAL MARINE CLUB CHALLENGE CUP
Donated by the Council of the Central Marine Club (U.S.S.R.). To be awarded annually to the Club whose exhibit represents the best achievement in marine model engineering.

NEW ZEALAND CUP
Presented by the Model Societies of New Zealand for the best model of a locomotive based on a design by L.B.S.C.

THE H. C. WHEAT CHALLENGE CUP
The H. C. Wheat Challenge Cup presented by his Son in memory of H. C. Wheat 1877-1948 to be awarded annually for the best O Gauge Locomotive exhibited.

THE WILLIS CHALLENGE CUP
Donated by Mrs. Willis, in memory of her husband, to be awarded annually for the best exhibit in the Hydroplane and Speedboat Section.

THE MODEL RAILWAYS BOWL
Presented by the proprietors of "Model Railways" for the best small gauge railway exhibit.

THE JOHN GRAY MEMORIAL TROPHY
Donated by the family of the late John Gray for the best Class N model by an entrant under 21.

THE MECCANO CUP
Presented by the Directors of Meccano (1971) Ltd., for the best Meccano exhibit.

L.B.S.C. MEMORIAL BOWL COMPETITION
A handsome trophy presented by public subscription by admirers of the late L. "Curly" Lawrence, known throughout the world as L.B.S.C. to be for a locomotive of his design, which will be judged on both appearance and performance.

CHAMPIONSHIP CUPS
In addition to challenge trophies a number of cups or other trophies are offered to become the permanent property of the winners. Class trophies are offered as follows for the best:

- I. Locomotive.
- II. Steam or Motor Vessel.
- III. Sailing Ship or Yacht.
- IV. Ship Miniature.
- V. Mechanically-Propelled Road Vehicle.
- VI. General Engineering Exhibit.
- VII. Aircraft model.

STUDENTS' CUPS
Awarded for any piece of amateur craftsmanship made collectively or individually by a class or member of a class of any school or technical college, or by a full time engineering apprentice. The exhibitor (or exhibitors) must be under the age of 18 on December 31st, 1972.

SCHOOLS' COMPETITION
For boys under 16 who are still at school. Entries can be made individually or collectively provided that the competitors are under 16 on December 31st, 1972.

COLLECTION

Models may be removed from the Hall between 7.0 p.m. and 10.0 p.m. on Saturday, January 13th; 10.0 a.m. and 4.0 p.m. on Sunday, January 14th, 1973.

ALL models MUST be removed by 10.0 a.m. on Monday, January 15th, 1973.

Competitors will be provided with a card authorising collection which MUST be presented.

Models cannot be reclaimed before the end of the exhibition.

S.A.S. JEEP COMPETITION

This is a modelling competition within a competition and does not appear on the *Model Engineer* Exhibition entry form. Organised by *Military Modelling* magazine in conjunction with the Army in general and the S.A.S. in particular, the competition is open to all modellers of any age.

Entries will be in the form of a model of a typical World War II S.A.S. Jeep from the Desert Campaign and any scale is acceptable; the model may be a 'free standing' single vehicle entry or a diorama or 'mini-diorama' and figures and scenery may be included — the choice is entirely open to the modeller. The competition will be divided into two groups, a Senior and Junior section (18 years or under on January 1st, 1973) and attractive S.A.S. trophies plus decorative plaques and some exciting 'days out with the Army' are among the numerous prizes which will be presented to first, second and third places in both age sections. The age of contestants in the Junior section will be taken particular note of and the youngest enthusiast need not fear that his work will be automatically 'outclassed' by someone older.

Among an impressive panel of judges will be famous S.A.S. soldiers, including David Stirling and recent Commander of 22nd S.A.S., Viscount Slim.

- | | | |
|----|--|--|
| 5 | Diagonal surface condensing paddle engine, S.S. 'Isle of Arran'. | R. K. Moore
(Haverhill, Suffolk) |
| 6 | Vertical Marine Type Engine, $\frac{3}{4}$ bore, $\frac{3}{4}$ stroke. | R. K. Moore
(Haverhill, Suffolk) |
| 7 | R. Sanderson, Glasgow, 1846 12 H.D. Beam Engine. | K. F. Rushton
(Southminster, Essex) |
| 8 | Double Compound Condensing Beam Engine. | T. Smith
(Accrington, Lancs.) |
| 9 | Triple expansion marine steam engine. | R. R. May
(Sark, Channel Islands) |
| 10 | General Purpose Float. | T. Pratt
(Basildon, Essex) |

CLASS K. Internal Combustion Engines.

- | Type | Name |
|---|-----------------------------------|
| 1 Wyvern Horizontal Gas Engine. | E. P. Hunter
(London SE15 2NU) |
| 2 24 cc. water cooled flat-four marine Petrol Engine. | L. C. Mason
(Winchmore, Hill) |

CLASS L. Mechanically-Propelled Road Vehicles (including tractors).

- | Type | Name |
|---|---|
| 1 2 in. scale Fowler Showman's Engine, Class R3. | W. L. Arnold
(Gosport, Hants.) |
| 2 Allchin Traction Engine. | A. J. Bodily
(Cogenhoe, Northants.) |
| 3 R/C Motor Scooter. | J. Bridge
(Blackburn, Lancs.) |
| 4 'Minnie' Traction Engine. | K. G. Crabb
(Aylesbury, Bucks.) |
| 5 Burrell Single Crank Compound, 6 h.p., No. 2439. | R. W. Fenner
(Tunbridge Wells, Kent) |
| 6 4 in. scale model, 8 h.p. Burrell Compound Traction Engine. | M. R. Frost
(Fareham, Hants.) |
| 7 Walter Hancocks ERA Road Steam Carriage 1833. | T. Goviis
(Drayton, Middx.) |
| 8 Traction Engine to Greenly design. | J. E. Jarman
(Stevenage, Herts.) |
| 9 'Minnie' Traction Engine. | R. Palmer
(Langley, Bucks.) |
| 10 M.E. Traction Engine (Henry Greenly). | A. E. Pugh
(Barnehurst, Kent) |
| 11 Allchin 7 n.h.p. G-P Traction Engine (Royal Chester). | R. Stephenson
(Wakefield, Yorks.) |
| 12 Wallis & Stevens 'Simplicity' Roller c.1925. | R. P. Wilson
(Alcester, Warwicks.) |
| 13 Traction Engine 'Minnie'. | F. L. Wakefield
(Staines, Middlesex) |
| 14 2 in. scale Fowler Showman Traction Engine. | M. Sedgwick
(Leeds, Yorks) |

CLASS M. Scale Motor Cars

(1) Working (2) Non-working (3) Working.

- | Type | Name |
|---|--------------------------------------|
| 2 1900/1901 Locomobile (Stanley Steamer). | N. Sharpe
(Hinkley, Leics.) |
| 3 1905 Rolls-Royce. | N. Sharpe
(Hinkley, Leics.) |
| 4 Grand Prix Bugatti. | T. V. Barlow
(Chichester, Sussex) |

CLASS MA. Diorama. Competition for Diorama composition for any type or size of figures or scenery to be of Military, Naval or Air Force character.

- | Type | Name |
|---------------------|---------------------------------------|
| 1 Waterloo 1815. | E. A. Andrews
(Chippenham, Wilts.) |
| 2 The Guards Stand. | P. Attwood
(Newham, London) |

Trade Exhibitors

(continued from page 40)

MAIN HALL — Stand No. 19

HINCHLIFFE MODELS

Hinchliffe Models extend a welcome to all and particularly hope that our stand will give you the opportunity to view our most comprehensive range of cast military figures and equipment models.

Although our company first made its impact because of the variety and

- | | | |
|----|--|---|
| 3 | Diorama using 20 mm. figures. | C. R. Bishop
(<i>Diss, Norfolk</i>) |
| 4 | 'Reprieve' Hanomag / Jagdpanther and Schwimmwagen. | Miss S. Garfrae
(<i>Wembley, Middx.</i>) |
| 5 | U.S. Tractor Cargo. | Miss S. Garfrae
(<i>Wembley, Middx.</i>) |
| 6 | 'The long weary road', Stug. | Miss S. Garfrae
(<i>Wembley, Middx.</i>) |
| 7 | Remnants of an Army. | D. Davis
(<i>Reading, Berks.</i>) |
| 8 | A resting Panther -G. | A. Disdale
(<i>Wembley, Middx.</i>) |
| 9 | Damaged Battleship 'Dunkerque'. | A. Disdale
(<i>Wembley, Middx.</i>) |
| 10 | On the Road to Tobruk. | R. Dixon
(<i>Buckhurst Hill, Essex</i>) |
| 11 | Sgt. Ewart at Waterloo. | W. G. Elliott
(<i>Kingsbury NW9 8TG</i>) |
| 12 | Scouting for column. | J. Frost
(<i>Aylesbury, Bucks.</i>) |
| 13 | Small Diorama. | S. Gardner
(<i>Farnham, Surrey</i>) |
| 14 | Tiger I, in action. | B. Van De Gohn
(<i>Hounslow, Middx.</i>) |
| 15 | Diorama of a French Napoleonic Artillery Team and Officer. | M. Goodall
(<i>Sherwood, Notts.</i>) |
| 16 | No title. | M. Green
(<i>Edgware, Middx.</i>) |
| 17 | 'Plans'. | D. M. L. Jones
(<i>London N13 5LA</i>) |
| 18 | Next move, 1944. | C. Kenny
(<i>London NW2</i>) |
| 19 | 'La Retraite'. | P. W. Ladyman
(<i>Harrow, Middx.</i>) |
| 20 | Home with the Battle Trophies. | P. W. Ladyman
(<i>Harrow, Middx.</i>) |
| 21 | Before Sedgemoor. | R. B. Maidment
(<i>Hove, Sussex</i>) |
| 22 | Scots Greys attacking French Infantry, two figures. | H. J. C. Mason
(<i>London NW2</i>) |
| 23 | Tiger Tank, Volkswagens, 26 figures and scenery in showcase. | D. J. McKenna
(<i>Erdington, Birmingham</i>) |
| 24 | German Military Vehicles. | C. Miller
(<i>Maidenhead, Berks.</i>) |
| 25 | Card School, Poste De Grenadiers (after Vernier print). | K. E. Nortrop
(<i>Guildford, Surrey</i>) |
| 26 | Orders received, Russia 42/43. | G. Patmore
(<i>Wimbledon SW19</i>) |
| 27 | Crashed Focke-Wulf 190. | T. Quinn
(<i>Newcastle-on-Tyne NE15 6LS</i>) |
| 28 | Diorama 'Russian Front 1943'. | D. V. Sarney
(<i>Wimbledon, London</i>) |
| 29 | Crusader Tank v. Panzer IV. | K. M. Smythe
(<i>Notting Hill, London</i>) |
| 30 | German 88 mm. Gun and Tractor. | K. M. Smythe
(<i>Notting Hill, London</i>) |
| 31 | French Inn, Napoleonic. | S. Walsh
(<i>London NW10</i>) |
| 32 | Conference. | T. G. Boyles
(<i>Sutton Coldfield, Warwickshire</i>) |
| 33 | Operations Meeting. | D. J. McKenna
(<i>Erdington, Birmingham</i>) |

CLASS MB. Groups of Miniature Figures.

- | | |
|---|----------------------|
| | Type |
| 1 | 14th century Samurai |
| 2 | Unnamed. |

- | |
|--|
| Name |
| J. Blackman
(<i>Walworth, London</i>) |
| Brig. C. P. Campbell
(<i>Andover, Hants.</i>) |

excellence of our equipment models, we have enjoyed even greater success since the introduction of our now celebrated and well-known 25 mm. figure range.

For the duration of the exhibition some members of our design or production staff will be on hand to answer your queries, note your comments, discuss our further plans, etc.

Please view our Waterloo war-game terrain model displayed elsewhere in the Hall. This will, perhaps, give you an insight into the lesser-known field of our activities, namely that of suppliers of individual pieces for the wargame table, complete wargame sets or dioramas. This work is executed to the highest standard and we are always pleased to quote for any item, large or small.

MAIN HALL—Stand No. 20**CHARLES KENNION**

Charles Kennion will once again be on his stand, to the left of the entrance, to give you the benefit of now over 51 years of practical steam model locomotive building to most of the world's leading designers.

This knowledge and experience is backed up by an almost limitless supply of drawings/castings and all materials to build a steam locomotive; adding to the range this year are miniature rivet snaps for 1/32 in.-3/64 in. and 5/64 in. rivets; which are available in Brass-Copper and Steel, also many other sizes.

The range of precision-made Hex steel screws with a SMALLER BA head has been extended to 2-3-4-5-6-7 and 8 BA; all in £1 packs complete with matching nuts, the number of screws in the packs varying in number from 100 down to 60 according to size.

Another new item is a range of rubber tubing in 18 sizes.

ALSO, Stainless Steel safety valve springs for 2½ in., 3½ in. and 5 in. gauges.

MAIN HALL—Stand No. 21**STUART INTERNATIONAL M.E.C.**

Members of 'SIMEC' (Stuart International Model Engineers' Club) will be in attendance to welcome fellow members and explain the Society's aims to other visitors. Membership (£2 annual subscrip-

tion) is open to all taking an active interest in Model Steam Engines. An illustrated bi-monthly Newsletter keeps overseas members in touch with others sharing their interests. 'SIMEC' has just celebrated its first birthday and there are already members from more than 20 countries. Exhibits by members will include Mr. Burgess' Log-sawing Plant; Mr. Norval's Sentinel Steam-wagon and Mr. Teal's Burrell Showman's Engine.

Details will be available of Stuart products and, it is hoped, reprints of some of the more important articles from the 'SIMEC' Newsletters as well as the Newsletters themselves.

MAIN HALL - Stand No. 23

E.M.A. MODEL SUPPLIES LTD

From April 1973 a unique range of Model Components becomes available to the hobby enthusiast.

Marketed under the name PLASTRUCT by E.M.A. Model Supplies Ltd., these items are selected from the large range of top quality components used world wide by all major design companies in the fields of Petroleum, Chemical and Nuclear Design.

Available individually or in 'Kit' form, they are easily cut and bonded within seconds using PLASTRUCT cement. Comparable with most other plastics, they are quick, clean and economical for a wide range of purposes. Components include Tubing, Fittings, Valves, Square and Rectangular Tubing and a wide range of true Structural Shapes Beams, Angles, Tees as well as Stairs, Ladders and Sheet Stock.

BRYANSTON ROOM -

Stand No. 26

CONWAY MARITIME PRESS LTD

Stand No. 27

SCOT URQUHART LTD

Scot Urquhart Ltd., newcomers to the Model Engineer Exhibition, offer an exceptionally wide range of machine tools and equipment. They will be exhibiting their Astra L/4 horizontal pedestal milling machine, together with the vertical version which is a combined horizontal and vertical machine with a motorised turret overarm. Also on show will be examples of the Astra $\frac{1}{4}$ in. and $\frac{1}{2}$ in.

- | | | |
|----|---|---------------------------------------|
| 8 | Group of Landsknechts and Swiss Militia. | D. M. Catley
(Reigate, Surrey) |
| 4 | Last Stand of the Kusunoki Clan. | D. M. Catley
(Reigate, Surrey) |
| 5 | Horse Stealers. | D. M. Catley
(Reigate, Surrey) |
| 6 | 'La Causerie'. | D. Davis
(Reading, Berks.) |
| 7 | Napoleonic Scene. | M. D. Harper
(Arnold, Notts.) |
| 8 | Three 'Lasset' Indians. | D. Harvey
(Portsmouth, Hants.) |
| 9 | 'Saving the Colours'. | T. Lesley
(East Ham, London) |
| 10 | Rorkes Drift, three figures. | H. J. C. Mason
(London NW2) |
| 11 | 'Bad News', Napoleon at Waterloo. | K. E. Nortrop
(Guildford, Surrey) |
| 12 | (1) Escort to the Colours.
(2) Plan of Campaign. | A. Proctor
(Barnet, Herts.) |
| 13 | Historical Group. | R. Ripley
(Billericay, Essex) |
| 14 | Officer's Groom, Trooper of Scots Greys on Troop Horse leading Officer's Charger. | D. Robinson
(Aylesbury, Bucks.) |
| 15 | Conversions based on Airfix collectors' series. | J. D. Wilmshurst
(Maidstone, Kent) |

CLASS MC. Converted Single Figures.

- | | Type | Name |
|----|---|--|
| 1 | German World War II Soldier. | Beavan
(Streatham SW16) |
| 2 | Fourteenth century Samurai on foot. | J. Blackman
(Walworth, London) |
| 3 | French Infantry of the Line, Voltigeur in Winter Dress. | I. M. Daly
(Stevenage, Herts.) |
| 4 | Converted Model Soldiers. | B. Farrant
(London E7 9QL) |
| 5 | Belgian Carabinier, 1815. | D. Hockey
(Palmer's Green, London) |
| 6 | 'Multi-Conversions'. | G. R. Jones
(Duston, Northants.) |
| 7 | Japanese Mounted Samurai. | S. J. Kemp
(Wimbledon SW19) |
| 8 | Present Day Piper, Scots Guards. | T. Lesley
(East Ham, London) |
| 9 | Hussar pulling horse out of river. | H. J. C. Mason
(London NW2) |
| 10 | Trumpeter-Grenadier a Cheval. | K. E. Nortrop
(Guildford, Surrey) |
| 11 | Carabinier Officer. | G. Patmore
(Wimbledon SW19) |
| 12 | English Musketeer, 1608. | D. C. Turner
(Banstead, Surrey) |
| 13 | Single figure Grenadier, 3rd Regiment (Swiss), 1812. | J. D. Wilmshurst
(Maidstone, Kent) |
| 14 | Fifteenth Hussar's Officer, 1834. | (Hereford) |
| 15 | Fort Garry Horse, France 1915. | J. A. Williams
F. W. Hearne
(South Ealing) |

CLASS MD. Great Wars Class

- | | | |
|---|---|--------------------------------|
| 1 | Sergeant, Desert Patrol, Arab Legion 1939/45. | F. W. Hearne
(South Ealing) |
|---|---|--------------------------------|

CLASS ME. Artillery.

- | | Type | Name |
|---|--|--------------------------------------|
| 1 | Model Howitzer. | D. L. Cowell
(Birmingham B18 4BL) |
| 2 | World War II German Panzer III and five figures. | G. Curtis
(Billericay, Essex) |

- | | | |
|---|-----------------------------------|--|
| 3 | Elephant Team and Gun 6.3 in. | D. Davis
(Reading, Berks.) |
| 4 | Maxim Naval .5 calibre Gun. | R. Dunk
(Rosemount, Aberdeen) |
| 5 | Barbarossa. | B. Gunn
(High Wycombe, Bucks.) |
| 6 | 6 in. Howitzer Gribeauval System. | R. D. Hale
(Ilford, Essex) |
| 7 | Gun Carriage M12 (U.S.A.). | M. A. Chapman
(Kettering, Northants.) |

CLASS MF. 54 mm. Class Figure.

- | Type | Name |
|--|---|
| 1 French Officer, Spain 1809. | P. Attwood
(Newham, London) |
| 2 British Coldstream Guard 1815, 54 mm. | Miss M. Barnes
(Colchester, Essex) |
| 3 Officers, French Line Lancers, 1812. | M. Boycott-Brown
(Cambridge) |
| 4 'Young Winston'. | D. Davis
(Reading, Berks.) |
| 5 Marshal Berthier, Prince of Neuchâtel, Prince of Wagram. | D. Hockey
(Palmer's Green, London) |
| 6 French Napoleonic Ambulance, 1815. | K. Jardine
(Basford, Notts.) |
| 7 Standard Bearer, Dragoons Regiment, Papal States, 1855 (2nd Lieutenant). | K. E. Nortrop
(Guildford, Surrey) |
| 8 Polish Lancer. | G. Patmore
(Wimbledon) |
| 9 (1) Second Regiment Dragoon Scouts.
(2) First Regiment Grenadiers Scouts. | A. Proctor
(Barnet, Herts.) |
| 10 Lancer, French Imperial Guard, at ease. | J. Stratton
(Crawley, Sussex) |
| 11 Standing figure, Infantryman 2nd Footguards, 1845. | G. M. Waugh
(Sunderland, Co. Durham) |
| 12 Mounted British 10th Hussar Trooper. | G. M. Waugh
(Sunderland, Co. Durham) |
| 13 Seventh Light Dragoon. | Brig. C. P. Campbell
(Andover, Hants.) |

CLASS N. Tools and Workshop Appliances.

- | Type | Name |
|---|--|
| 1 Dividing Head. | D. H. McDermott
(London SW16 1AF) |
| 2 'Quorn' Universal Tool and Cutter Grinder. | N. S. Hemingway
(Rochdale, Lancs.) |
| 3 Compound Slide Rest for Watchmaker's Lathe. | W. C. J. Truscott
(Perranporth, Cornwall) |
| 4 Pin Drilling Machine. | W. Moor
(Royston, Herts.) |
| 5 Emery Disc and Finisher. | W. Moor
(Royston, Herts.) |
| 6 Modified Cowell Drill Press. | M. F. Costello
(London SE13) |
| 7 Tailstock Die Holder (based on commercial pattern). | J. D. Polson
(Yell, Shetland) |

CLASS O. Engineering Scale Models (Non-Working).

- | Type | Name |
|---|--|
| 1 Hover Tank, made in Riko Card. | J. H. Durling
(Wallington, Surrey) |
| 2 1½ in. to 1 ft. scale model of a motorised ½ in. Bench Drill with vice. | Lt.-Col. G. M. Edye, J.P.
(Ballaugh, Isle of Man) |

drilling machines and the Astra band grinder. Other items will include a display stand showing a large range of equipment including rotary tables, surface plates, vee blocks, five different kinds of vices, hand shears, dividing heads, mandrels, centres, die stocks and the well-known range of Kanon measuring instruments. These items are all sold through the merchant trade only and available through local stockists.

BRYANSTON ROOM —
Stand No. 28**PROFILE PUBLICATIONS LTD**

Profile Publications will be offering their complete range of titles covering Aircraft Profiles, Warship Profiles, AFV/Weapons Profiles and Loco Profiles. These are available as single subject booklets or as bound volumes embracing a number of grouped subjects for permanent retention. Also on view will be the new range of Action Profile Books, which not only include colour and detail of selected aircraft (Spitfire, Messerschmitt Bf 109, Republic P-47, Mitsubishi Type O Zero), but also rub-down action transfers of parts for users to assemble their own planes.

Wide selection of items and splendid range of prices to suit all pockets. Expert staff in attendance throughout the Exhibition.

Stand No. 32

SEAGULL MODEL (G.B.) LTD

This Company have become well known as specialists in card models by mail order. In the past six months it has expanded its activities considerably to encompass military and maritime subjects.

Among the items carried are model soldier figures both in the unpainted and painted forms, model ship kits and plans, including the famous Norman Ough drawings of W.W.II British Warships and the A. & A. Plans range. Books on Militaria and Shipping, both new and second hand, a full range of adhesives and tools for the scale modeller including the Pyrogravure and the range of Seagull accessories such as Kandinsky sable paint brushes, brass ships' rail, gun barrels, chain, etc. in various scales, and 54 mm. barbed wire for diorama builders.

Stands Nos. 33 and 34

RIZLA LTD

Many of you visiting the Exhibition today will have been introduced to Rizla Papers when you have been setting-up on back lathes also the thickness of gauges.

We are sure you will also use Rizla Papers in miniature shape modelling and military figure modelling.

As you will know, generally Rizla Papers are a considerable aid to any form of precision modelling and for adding artistic effects to miniature and particularly military figures, but we are here today to demonstrate the rolling of hand-made cigarettes.

We invite you to our Stand where you can test your skills against our 'Puff' machine.

Stand No. 35.

DAYTRONICS LTD

Daytronics Ltd. have quickly established a reputation for themselves in the field of light-powered tools of special interest to those in the audio construction field, and indeed to everyone concerned with making small, electronic gear or the many ramifications of the model world. Their miniaturised drill is only $4\frac{3}{4}$ in. long, extremely light in weight, and designed for comfortable holding in the hand. This little drill is capable of precise drilling of holes down to one-tenth of a millimetre in diameter, which can be accurately located without prior marking out, or popping. Also on display will be a comprehensive range of drilling, milling, grinding and polishing tools, chucks with adjustable holder, assorted twist and blade drills and seven types of milling cutters. All these can be operated with the basic miniaturised drill.

The complete kit is housed in a practical carrying case with moulded foam inserts. It is the brain child of a young French electrical model engineer and is accepted throughout Europe as *the* model tool. Will be demonstrated continuously throughout the Exhibition — with every opportunity for visitors to try their hands. Special introductory Exhibition price kit, which can be bought from the Stand.

BRYANSTON ROOM —
Stand No. 36

STEAM ENTERPRISES

- | | | |
|---|--|---|
| 3 | Honda Dax (Motorcycle). | J. Graham
(Aldershot, Hants.) |
| 4 | Alvis (Scorpion) A.F.V. One of Britain's latest lightweight tanks. | B. Lawrence
(Worcester Park, Surrey) |
| 5 | 'Karl 041' S.P. Mortar. | R. C. Lighthart
(Welling, Kent) |
| 6 | Selection of 4 mm. scale Buses (5). | E. Taylor
(Forest Gate, London) |

CLASS P. Scenic and Representational Models (including Architecture).

- | | Type | Name |
|---|--|--------------------------------|
| 1 | Shakespeare's Birthplace. As it was in 1807. | T. Clews
(Norwich, Norfolk) |
| 2 | Shakespeare's Birthplace. As it is today. | T. Clews
(Norwich, Norfolk) |

CLASS Q. Horological, Scientific and Optical Apparatus.

- | | Type | Name |
|---|--|---|
| 1 | Half minute Impulse Clock with half second pendulum. | A. E. Bowyer-Lowe
(Letchworth, Herts.) |
| 2 | Electric Clock with semi-free balance. | A. Nash
(Chellaston, Derby) |
| 3 | Ting-Tang quarters Bracket Clock Movement. | L. Sowerby
(Croxted Road, London) |
| 4 | Quartz Crystal Timepiece. | K. Smith
(Canterbury, Kent) |
| 5 | Verge Alarm Timepiece in Break-Arch Case. | J. Stevens
(Ealing, London) |
| 6 | Eight-day Skeleton Clock. | J. H. Wilding
(Billingshurst, Sussex) |

CLASS R. General Craftsmanship — not otherwise classified.

- | | Type | Name |
|----|---|--|
| 1 | Salvo Royal Tricycle, 1880. | C. F. Adams
(Ruislip, Middx.) |
| 2 | Harpers Ferry, U.S. Martial Flintlock Pistol. | Major R. C. Armstrong
(Camberley, Surrey) |
| 3 | War Armour for man and horse. | W. F. Bayes
(London W11) |
| 4 | The Skyriders. | A. J. Cox
(Kings Langley, Herts.) |
| 5 | Caravan. | A. J. Cox
(Kings Langley, Herts.) |
| 6 | Long-handled Shoe Horn, designed and made to C.S.E. classification for a cripple. | J. H. G. C. Durling
(Wallington, Surrey) |
| 7 | Collection of Six Buses, 1914-70. | T. Kay
(Peterborough PE1 3QF) |
| 8 | Horse drawn Narrow Boat. | D. S. Smith
(Stafford, Staffs.) |
| 9 | Three-piece Suite (upholstered with cushions and table). | G. M. Waugh
(Sunderland, Co. Durham) |
| 10 | Decorated horse drawn Caravan. | G. M. Waugh
(Sunderland, Co. Durham) |
| 11 | Thirty-two pdr. Ship's Gun, c.1780. | J. W. Way
(Thetford, Norfolk) |
| 12 | Romany Caravan, Hereford, 1910. | J. P. Webster
(Nr. Bakewell, Derbyshire) |
| 13 | Replica Duelling Pistol (to drawing by Gundraw). | J. D. Polson
(Yell, Shetland) |

CLASS S. Junior Section.

Type	Name
1 French Farm.	R. M. Allin (Reigate, Surrey)
2 1/32 scale Focke-Wulf 190A.	P. Bailey (Keighley)
3 Wellington B.111.	S. R. Bird (Telford, Shropshire)
4 'Charge'.	P. Bonner (Pinner, Middx.)
5 'The Little Corporal'.	P. Bonner (Pinner, Middx.)
6 R.A.F. Crash Tender.	N. Bowers (Kensington, London)
7 In Leningrad, January 1944.	D. Brownlee (Harrow HA3 8LE)
8 'One of the Elite'. Soldier of the elite 'Grossdeutschland' Div.	A. D. Chitty (Reigate, Surrey)
9 Napoleonic Gun Team.	T. W. T. Frost (Hampstead, London)
10 Armoured Vehicle.	P. Groom (Leamington Spa)
11 Collection, 22 Armoured Vehicles.	P. R. Groom (Leamington Spa)
12 The Raid on St. Nazaire.	I. P. D. Jory (Tewin, Herts.)
13 Pz Kpfw III.	D. S. Mackenzie (Streatham Hill, London)
14 En route to Rome.	R. Napper (Nr. Alton, Hants.)
15 McDonnell Phantom F4.	G. Nicholls (Sparkbrook, B'ham)

CLASS S cont.

Type	Name
16 Fifty-four mm. Napoleonic diorama – two mounted, one foot on base and cover.	I. D. Osborn (Worthing, Sussex)
17 Trumpeter of Mounted Chasseurs of French Imperial Guard in Undress Uniform.	I. D. Osborn (Worthing, Sussex)
18 Woodwork Lathe -S.	P. Hardiman (Royston, Herts.)
19 Saladin Mk II Armoured Car.	A. C. R. Phipps (Kings Lynn, Norfolk)
20 Dornier DO17Z-2.	A. C. Phipps (Kings Lynn, Norfolk)
21 'Crossroads'.	N. Procter (Reigate, Surrey)
22 Clarkson High-Speed Engine and Dynamo.	I. D. Ronchetti (Ruislip, Middx.)
23 S.A.S. Desert, 1942.	G. Stanton (Godalming, Surrey)
24 Radio-Controlled Vosper Air-Ssea Rescue Launch.	M. C. Saunders (Pinner, Middx.)
25 Heinkel 111.	P. Walsh (London NW10)
26 1800 12 lb. Cannon.	S. Walsh (London NW10)
27 Sopwith Camel.	T. Waller (Cookham Rise, Berks.)
28 'Eastern Front, 1940'.	R. Watson (Co. Antrim, N. Ireland)
29 Coldstream Guard.	R. Watson (Co. Antrim, N. Ireland)
30 Billing Kit (Crab Fishing Boat).	B. Wickerson (Barnet, Herts.)
31 Stuart Sun Marine Engine.	C. Williamson (S. Ruislip, Middx.)
32 Vosper PL4.	L. R. Williams (Winchester, Hants.)

MODEL ASSOCIATIONS

Stand No. 25**PROTOFOUR SOCIETY**

'PROTOFOUR is a system for exact scale model railways, built to a scale of 4 mm. to 1 ft., which has been designed to combine correct scale proportions with ease of construction and complete reliability of running.

'Essentially, PROTOFOUR consists of a new set of standard dimensions, and a range of track, wheel and other components which are all accurately based on prototype dimensions. Because of this, each item will always match all other parts in the range.

'Tools, gauges, templates and techniques have been developed to enable modellers to produce a model railway layout which works smoothly and reliably, and which looks exactly like the real thing.

'The use of these tools and techniques are shown on the Stand of the PROTOFOUR SOCIETY.

'The PROTOFOUR SOCIETY was inaugurated in 1969 to provide a forum for modellers interested in PROTOFOUR. Regular National and Area meetings are held at which lectures and demonstrations are given and where modellers can get together informally. This is particularly valuable to the newcomer to railway modelling since it enables him to contact experienced modellers who will always be pleased to help him by answering his queries.

'Membership inquiries should be addressed to General Secretary, L. H. Haynes, 83 Westbury Road, Northwood, Middlesex.'

Stand No. 29**THE MODEL POWER BOAT ASSOCIATION**

The M.P.B.A. was formed in 1924 to bring together those interested in the modelling of powered craft in all their many forms. In 1972 the membership of the Association stands at 100 clubs which are well distributed all over the country.

All types of craft are found among those sailed by members and whether you are interested in com-

petition or purely building and operating a powered model boat we urge you to join one of our affiliated clubs.

For those who like the added spice of competitions in their activities, many clubs organise regattas during the summer months (the season usually runs from April to October) and in any one weekend we have no less than four regattas in operation at the same time, and there can be no doubt that a lot of fun and enjoyment can be had at the pondsides.

There are many people who just like to build and operate their models in a more placid atmosphere and here again club life has much to offer, bringing them into contact with others of similar interests and those who are expert in, say, scale ships or the technicalities of radio control.

Stand No. 30

SOUTHERN FEDERATION OF MODEL ENGINEERING SOCIETIES

The Southern Federation Of Model Engineering Societies; the present Federation was formed in 1969 after an exploration of the possibilities in the previous year. Its aims are to encourage all branches of Model Engineering to promote the club aspect of the hobby, to encourage and facilitate interchange of ideas and experience. The Federation has a yearly programme of activities, principally the holding of Rallies at its constituent members' model railway tracks, and participating in the M. E. Exhibition; its first stand at the last Exhibition was highly successful. A Newsletter is circulated quarterly, reporting on events and giving news items of general interest to its members. In addition, it has set up a special committee to look into various matters concerned with safety in modelling activities and Insurance of these. It has already approved boiler test standards for general adoption amongst the member Societies to facilitate and encourage inter-club visiting of model loco. enthusiasts.

Stand No. 37

NORTH LONDON SOCIETY OF MODEL ENGINEERS

(Headquarters: Church Farm, East Barnet. Secretary: H. Hodding, 65 Oakleigh Park North, London N.20)

CLASS WB. Any work in glassfibre or other plastic as main constituent.

	Type	Name
1	Brontosaurus, Prehistoric Dinosaur.	D. J. Davidson (Brentwood, Essex)

CLASS WD. General Craft Work — musical instruments, carving, marquetry, drawings.

	Type	Name
1	Shire Horse and Cart.	P. R. Davidson (Brentwood, Essex)
2	Greyhound, Mick the Miller.	J. Duncan (Bridge of Don, Aberdeen)
3	Brown Trout.	J. Duncan (Bridge of Don, Aberdeen)
4	Drum Kit.	E. E. Fenn (Acton, London)
5	Viola (Tertis model).	G. E. Hobbs (Windsor, Berks.)
6	Cheval Mirror (own design).	G. A. Johnston (Longniddry, E. Lothian)
7	Tripod Table.	G. A. Johnston (Longniddry, E. Lothian)
8	Ornamental Wood Turning (five pieces).	B. F. Klingenspor (Harlow, Essex)
9	Dulcimer (Musical Instrument).	C. McGuire (Newport Pagnell, Bucks.)
10	Emblems of the World. Set of four painted wood carvings.	C. McGuire (Newport Pagnell, Bucks.)
11	'Christ and the Sorrowing Mary'. Flat wood carving, part painted.	C. McGuire (Newport Pagnell, Bucks.)
12	Turned Segmental Bowl with Lid.	H. Wilson (St. Albans, Herts.)
13	Turned Table Lamp.	H. Wilson (St. Albans, Herts.)
14	Turned Segmental Bowl.	H. Wilson (St. Albans, Herts.)
15	Turned Segmental Shallow Bowl.	H. Wilson (St. Albans, Herts.)

STUDENTS' CUP

	Type	Name
1	Locomotive 0-6-0 'Simplex'.	Alford & Alder Components (Hemel Hempstead, Herts.)
2	Diagonal Paddle Engine by Edgar T. Westbury. Bore $\frac{3}{4}$ in., stroke $1\frac{1}{2}$ in.	Basic Training Course, Worcester Tech. Col., (Deansway, Worcester)
3	Stuart No. 1 Engine and Boiler.	K. J. Fleet (Ruislip, Middx.)

CLASS AA. (a), (b), (c). Flying models of all types.

	Type	Name
1	Pterodactyl.	P. W. Lee (Hornsey N8 8QU)
2	Duration Semi-scale Puss-Moth.	P. W. Lee (Hornsey N8 8QU)
3	F.A.I. Class Power Duration Model.	M. L. Wood (Petts Wood, Kent)
4	A2 Specification Glider.	M. Dilly (Wickham, Kent)

CLASS AB. Scale flying models of all types.

	Type	Name
1	Cody Kites.	P. W. Lee (Hornsey N8 8QU)

- 2 Flying scale Hot Air Balloon, Montgolfier.
- 3 Flying Flea.

CLASS AC. Scale non-flying models.

- | <i>Type</i> | <i>Name</i> |
|--|---------------------------------------|
| 1 Airfield Towing Tractor, towing Hawker Siddeley Harrier | B. Banbury
(Aldershot, Hants.) |
| 2 Mitsubishi J2M3 'Jack'. | C. R. Bishop
(Diss, Norfolk) |
| 3 Lockheed P38-J Lightning. | C. R. Bishop
(Diss, Norfolk) |
| 4 Messerschmitt Me 262A-1A. | T. Bourke
(Cricklewood, London) |
| 5 Boeing F4B-4. | T. Bourke
(Cricklewood, London) |
| 6 Fokker E111. | T. Bourke
(Cricklewood, London) |
| 7 Supermarine Spitfire Mk 1A. | J. Carter
(Reading, Berks.) |
| 8 Boeing Vertol KV107-11-5s, of Air Rescue Corps, Japanese Air Defence Force. | J. Carter
(Reading, Berks.) |
| 9 Heinkel He219.A.2 of 1st Staffel Nachttagdgeschwader 1. Based at Knokke/Sylt, Spring 1945. | J. Carter
(Reading, Berks.) |
| 10 Radial Engined Hart. | J. M. Durling
(Wallington, Surrey) |
| 11 Lockheed Air Express. | C. B. Hall
(Bourn, Cambridge) |
| 12 Lockheed Orion. | C. B. Hall
(Bourn, Cambridge) |
| 13 Lancaster attacking Moehne Dam. | A. M. Moore
(Harrow, Middx.) |
| 14 Spitfire Mk 1A. | G. Napper
(Alton, Hants.) |
| 15 R.E.8. | S. F. Newman
(Coulston, Surrey) |
| 16 De Havilland Mosquito Mk IV (plastic kit). | W. A. Nicholls
(Sparkbrook, B'ham) |
| 17 Me 262 1A. | M. Philpot
(Cookham, Berks.) |
| 18 B.A.C. Lightning F.6 74 'Tiger' Squadron. | D. M. Prescott
(Dulwich, London) |
| 19 L.V.G. C.V1, German World War I Bomber. | R. L. Rimmell
(Pinner, Middx.) |
| 20 The 'Butcher Bird', FW 190. | E. Taylor
(London E7) |

CLASS AC cont.

- 21 B.O.A.C. Super VC 10.
- 22 Tiger Moth DH 82A.
- 23 Short Scylla.
- 24 D.H.83 Fox Moth.
- 25 Vickers Vulcan.
- 26 De Havilland Mosquito PR XVI, No. 680 Squadron, R.A.F. Roffia, Italy, 1943.
- 27 Junkers JU88A LG1, Derna, North Africa, 1942.
- 28 Junkers JU87D3 of 4/SG77, Central Russian Front 1942, with wreckage of ME 110C aircraft.
- 29 Lafayette Escadrille Nieuport 17 1915, with figs (4).

- P. W. Lee
(Hornsey N8 8QU)
P. A. Scorey
(Finchley N3 1HY)

- Name*
B. Banbury
(Aldershot, Hants.)
C. R. Bishop
(Diss, Norfolk)
C. R. Bishop
(Diss, Norfolk)
T. Bourke
(Cricklewood, London)
T. Bourke
(Cricklewood, London)
T. Bourke
(Cricklewood, London)
J. Carter
(Reading, Berks.)
J. Carter
(Reading, Berks.)
J. Carter
(Reading, Berks.)
J. M. Durling
(Wallington, Surrey)
C. B. Hall
(Bourn, Cambridge)
C. B. Hall
(Bourn, Cambridge)
A. M. Moore
(Harrow, Middx.)
G. Napper
(Alton, Hants.)
S. F. Newman
(Coulston, Surrey)
W. A. Nicholls
(Sparkbrook, B'ham)
M. Philpot
(Cookham, Berks.)
D. M. Prescott
(Dulwich, London)
R. L. Rimmell
(Pinner, Middx.)
E. Taylor
(London E7)

- K. Wagner
(Camberley, Surrey)
J. Waller
(Cookham Rise, Berks.)
A. F. Woollett
(Wokingham, Berks.)
A. F. Woollett
(Wokingham, Berks.)
A. F. Woollett
(Wokingham, Berks.)
P. A. Wraight
(Edgbaston, B'ham)
P. A. Wraight
(Edgbaston, B'ham)
P. A. Wraight
(Edgbaston, B'ham)
F. W. Hearne,
(South Ealing)

This Society was formed in 1944 as a General Model Engineering Society. It has, at present, a membership of about 170 whose interests cover all branches of the hobby. Regular monthly meetings of the Society and its sections are held at its headquarters, which also houses the 100-ft. slot car track, and a comprehensive model engineering library.

The active marine section runs an annual open regatta and its members compete regularly in M.P.B.A. regattas.

The Society's loco. track is on private ground at Colney Heath, Herts. It includes a continuous track 1/3rd mile in length for 3½ in. and 5 in. gauges and a shorter 'up and down' track for 2½ in., 3½ in. and 5 in. gauges.

Stand No. 38**THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS**

The S.M.A.E. Stand this year is in the Lecture Hall and is entirely visual, reflecting over 50 years' of service to Aeromodelling and Aero-modellers. Application forms for membership are on the Stand or inquiries should be sent to: Public Relations Officer, S.M.A.E., 41 Carrs Way, Harpole, Northants.

Stand No. 40**INTERNATIONAL PLASTIC MODELLERS' SOCIETY**

An established rendezvous for scale modellers the I.P.M.S. Stand at the M. E. Exhibition will, as usual, be staffed by members from within this Society whose policy has always been 'For Modellers - by Modellers'. Originally formed some eight years ago under the title of the British Plastic Modellers' Society, the rapid growth of interest in modelling from plastic kits, together with scratch modelling from plastic card, etc., lead to inquiries being received from other modellers residing outside the U.K. and as the interest in the hobby grew it became necessary to change the title to INTERNATIONAL PLASTIC MODELLERS' SOCIETY and as a result of this the membership now stands at around the seven thousand mark.

The Society has a long association with the various manufacturers of plastic kits and it is true to say that

many of the improvements and innovations seen in the quality and accuracy of plastic kits originated through close liaison between the Society and the kit manufacturers most of whom also closely support the many activities sponsored by the Society. These range from annual National Competitions and Exhibitions to monthly or similarly regular meetings which are held at many of the major towns and cities in this country – in fact there is probably a branch of I.P.M.S. in your town or if not then proposals to form such branches are always welcomed by the committee of the Society. U.K. membership costs £3 (senior) or £2 (junior) per annum.

Stand No. 41

THE BRITISH MODEL SOLDIER SOCIETY

One of the first model soldier groups to be established in the world, the British Model Soldier Society was founded, as the British Society of Collectors of Model Soldiers, in 1935, by a small band of enthusiasts. It was kept alive during World War II by the efforts of a few devoted members, and has now expanded to represent a complete cross-section of military modellers from novice to seasoned veteran. There are 14 Area Groups organised in the U.K., in addition to many members throughout the world, all of whom are kept in touch with developments in the hobby via the Society's publication, the *Bulletin*, which is produced bi-monthly.

Each Area Group holds regular meetings at most of which competitions and displays take place, whilst the Annual Competitions of the whole Society are held each Spring in London. All Area and Annual Competitions are governed by rules laid down by the Society, to cover as thoroughly as possible requirements of scale, material, period, dress, equipment, background, etc.

Competitors are also graded and classified as to skill and experience to ensure maximum fairness of judging, due allowance being made for degrees of competence. It is emphasised that the Society and its rules exist to serve the best interests of the whole military modelling hobby and are not confined to any one aspect thereof, a universality which is reflected in its membership.

CLASS AD. 1/32 scale working electric powered car.

Type	Name
1 Own design Car.	N. Maloney (London E9 7BD)

CLASS AE. 1/24 scale working electric powered car.

Type	Name
1 SHADOW 7 Mobile.	P. M. L. Brahan (Romford, Essex)
2 1959 Chevrolet Corvette.	L. J. Brock (London SE21 8QB)
3 1929 4½ litre Supercharged Boat-tailed Roadster Bentley.	T. D. Joulding (Ewelme, Oxford)
4 Lotus 49C.	D. C. Patrick (Borehamwood, Herts.)
5 Ferrari 3 IZB F.I.	D. C. Patrick (Borehamwood, Herts.)
6 Lola T70 Mk III.	D. C. Patrick (Borehamwood, Herts.)
7 Six Miscellaneous Car Models.	D. G. Waugh (Redditch, Worcs.)

CLASS AF. Radio Controlled Models.

Type	Name
1 Formula One, 1971 McLaren M.19.	B. Harrison (Blaby, Leics.)

MECCANO CUP

Type	Name
1 Freelance Showman's Road Locomotive.	H. J. Halliday (London SE15 5QT)
2 Freelance Heavy Goods Vehicle.	G. Hoad (Hastings)
3 Meccanograph Designing Machine.	N. A. Moyes (Sudbury, Suffolk)
4 1910 'B' type Bus.	C. Warrell (Eltham, London)

LOAN SECTION

Type	Name
1 Small Hot Air Machine.	B. Knight (Mitcham Lane, Streatham)
2 Sally Beach's Galloping Horses.	J. Maundrell (Bedfont, Middx.)
3 Foden six ton D/Comp. Steam Wagon.	T. Morris (Seisdon, Staffs.)
4 Soldier Grenadier of the French Imperial Guard (Napoleonic).	Hargrave Imperial Directors, John Johnstone & Lewis Pollock (London NW5)
5 One-Year Skeleton Table Clock.	C. B. Reeve (Hastings)
6 Miniature Chiming Clock Movement.	C. B. Reeve (Hastings)
7 Multi-Type M.F.V.	R. Hart (Northampton)

Racing with MODEL CARS

**A REPORT ON THE STATE OF THE ART
BY ALEC GEE**

Young James Carvell, this country's top R/C racing prize winner with another very fast driver, Ted Longshaw; the venue is the Newbridge Circuit in Leicester and in front of the drivers are some of the goodies James won when he became Formula 1 Champion at the culmination of the Newbridge Club's series of events, run throughout 1972.



WE MAKE no excuse for starting this report on the year's model car racing activities with a look at developments in the most exciting new field to hit the sport for many a year, radio controlled racing. If slot racing has enjoyed a 'typical' sort of 12 months (at least from the activities side of things if not necessarily the trade) then R/C racing has almost certainly excelled itself, and the expectations which enthusiasts must have cherished at the beginning of 1972.

Just like its full-size counterpart, R/C model racing has enjoyed a really packed 'season' of dates and fixtures with, at our reckoning, over 30 major events from March, 1972, running right through until as recently as December 3rd, having taken place for the three major classes around which the hobby has now settled viz. Formula 1, Sports/

GT and Saloon. Again, as with the full size scene, a 'circus' of top-name drivers can always be counted on to attend the majority of meetings during the season and their performances are guaranteed to put them regularly somewhere up in the winners' circle.

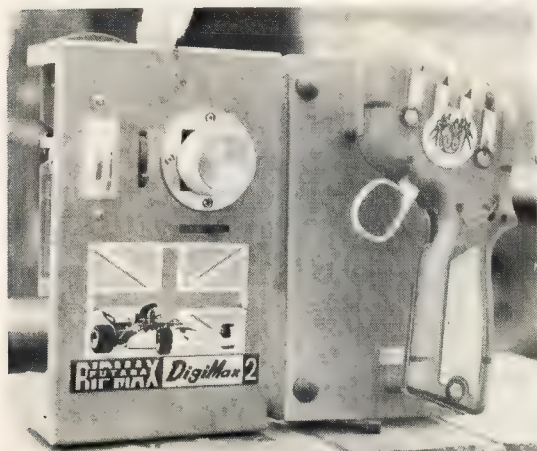
The biggest single factor which has influenced R/C racing over the last year has undoubtedly been the introduction of the 'Masterboard' principle of race organising by Fred Boddy of the Portsmouth Club. Fred's device, subject of a descriptive article in the August, 1972, issue of *Model Cars* magazine was first in operation at the Portsmouth Club's first meeting of the season on May 20th and from then on proceeded to transform race organising and, indeed, the whole flavour of single- and two-day events. It was initially designed

to avoid the problems involved in shuffling drivers round to make up heats, bearing in mind the fact that with superhet (which all R/C car racers use) sets, the majority are on a set crystal frequency, or if after Heat 1 a 'colour'. The whole beauty of the system meant that, within the time limits set for the class within a meeting, a driver could participate in as many heats as he liked and also choose his frequency; i.e. if after heat 1 a competitor's car requires attention, he can complete this and re-enter the racing system in a later heat having missed as many heats as he wishes while repairs are made. The system made for more complete races and as the year proceeded it was becoming common for the heats themselves to contain five or six cars – not at all as in the early days when sometimes even the Final could not sport a full field due to frequency clashes, etc.

The second Masterboard (and a slightly improved version) cropped up within weeks at North Weald, the home of the North London R/C car racers and, in fact, this board has been transported about the country to a host of meetings since, and is under consideration for use at the 1973 British National Finals at Warwick.

The Circuits

1972 has seen the construction and operation of no less than two completely purpose-built circuits especially for $\frac{1}{8}$ th scale R/C cars. The first and the more



A typical modification to a once standard two function proportional R/C transmitter; this is Dave Roger's 'box' which features Parma model slot car hand controller mounted on the back for throttle and a knob which the operator twists on the front for steering function.



Typical R/C saloon car race start, this one from the 1972 Bradford Mintex two-day event; drivers stand on oil drums to control models and the circuit shape is marked out in thin-diameter rope.

sophisticated is the Newbridge Model Car Circuit at Leicester which enjoyed its opening meeting early in 1972 and has proved itself a firm favourite with drivers from the word go. Constructed by Newbridge Car Club members with financial assistance from R/C car kit manufacturers, Mardave Limited (who own the land), the circuit has a track only 9 feet wide but, contrary to what one would expect, this, if anything, adds excitement to racing and is by no means a short-coming. The circuit is beautifully 'landscaped' with banked hairpin bends and a hill and drop, etc., and is from smooth concrete with wonderful spectator and drivers' rostrum facilities together with sophisticated covered pit areas, toilet facilities and a refreshment/race operators' shed, making the whole set-up one of the most attractive sites for the sport in this country.

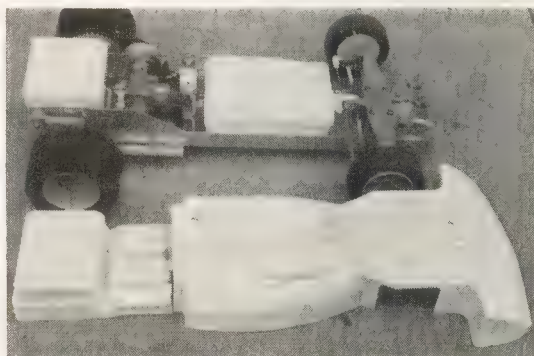
The second circuit built especially for the purpose is that of the North London R/C Car Club at North Weald Airfield where enthusiasts under the guidance of Club Secretary and general moving force in the Association, Dave Rogers, have constructed a nicely shaped 'hot tarmac' circuit (slightly wider than that at Leicester) laid directly on to the airfield runway surface. Drivers control their models from a substantial scaffolding rostrum and again, there are refreshment facilities on the site. Less sophisticated maybe (with the exception of the Nationals at Warwick which boasted a Mini T.V. camera and videotape recording facility enabling drivers to watch themselves during their last heat!) but just as enjoyable have been the races over the season at what one can only term 'make-shift' circuits. These have largely

been on smooth school playgrounds (Romford, Newhaven, Portsmouth, etc.), and similarly bump-free car parks. The 1972 Nationals at Warwick enjoyed not only brilliant sunshine (as 1971) but also a good turnout of drivers and spectators and it's a shame to recall that the organisation didn't quite live up to this grand support; arrangements for the 1973 event bode better, however, with the organisers' agreement to operate on the Masterboard principle which will please everyone. On 'makeshift' circuits like those we have mentioned, the most popular system of track marking has been ropes which are pinned directly to the ground and provide just enough of an 'upset' to cars unfortunate enough to cross them; broad coloured adhesive tape was used at Warwick and while this doesn't have much effect on suspensions, it is possibly easier to see from the driving position, but does make the case for a system of penalty points to be applied by numerous marshalls and this system, due mainly to the undoubted degree of human error it must inevitably involve has not found favour with drivers.

The Cars

If the 1972 season was a good one for British manufacturers, it was, if anything, marginally better for the Americans; friendly U.S. drivers like Roy Moody and Californian, Lyn Fletcher visited these shores in mid season and startled everybody with their American Marker and Taurus kits and indeed, in the case of Roy, his own uncatchable scratchbuilt chassis. Britisher, Ted Longshaw, one of the fastest men in this country, went to the American Nationals in California in August just 'to see if they really were going as fast out there as we have been led to believe'. Ted returned home a wiser and much impressed man with the unbelievable speeds and handling achieved in the States and the Americans we have seen this season certainly bore all this out.

On the home front, the 1972 season saw the release of the P.B. Kit in its Mark 2 version as the popular Racing Double which so many enthusiasts are having success with; Keith Plested, Manager of P.B., put a lot of thought and practical experimentation into the design which began paying off early in the season and has provided him, and son Mark, with a host of wins. In the later stages of the season, big P.B. rivals, Mardave of Leicester began to 'come good' with their standard kit car and a beautifully prepared team of six took first place in the first ever British R/C Car Endurance event (a sort of mini Le Mans) at Stockport in November. Success for Mardave is to be expected on their home track at Newbridge but young James Carvell who has driven so convincingly to become this country's top value



The neat, functional and highly successful P. B. Products 'Racing Double' kit which surely has come to represent an easy way to success first time for many beginners.

prize winner (he's won two proportional radio sets, motors and cash, etc.), is no less an exceptional young driver because of this.

The Veco 19 is still the power plant in use by the majority and, one interesting development is that suspension has become thoroughly 'damped', contrary to theories about springy cars which existed last year. Many commercial accessories have become available in the shape of wheels and tyres, clutch units, gears and suspension, etc., and, all in all, the merchandise situation is looking fairly healthy with little rubbish on the market and much that's reasonably priced and genuinely useful.

R/C gear remains the essential multi channel proportional equipment but the 1972 season has seen British drivers modifying their transmitters along American lines; this has involved the removal of the throttle function to the back of the transmitter case operating through a model slot car hand controller unit giving trigger control for engine speed. One or two drivers, Dave Rogers in particular, have devised a system of linkages and a rotating knob to provide steering control on the front of his box thus getting away completely from the 'two stick' principle.

The future

If enthusiasm runs as highly this year as it did last, the 1973 R/C car racing season should be even better; the endurance race idea is here to stay - enthusiasm for the first event in Stockport has been tremendous with drivers demanding 're-runs' and as many of these as possible in 1973! As we said earlier, the British Nationals are again scheduled for Warwick and the organisers at least, at this early time, seem completely open to suggestions for improvements by the drivers themselves; if suggestions are provided and listened to, it could well be (and indeed, should be) the 1973 meeting to remember. In any event, there will be the same number of, if not more, meetings this season as last and, as in any competitive hobby, progress will be made in the speed department; Ted Longshaw, thoroughly bitten by the American R/C bug, is determined to return this year and there's even the possibility of organising a charter flight to Chicago (this

year's venue) enabling more British enthusiasts to participate in what is without doubt, the fastest R/C car racing in the world.

The deceptively calm scene at Tottenham Model Raceways, where the fastest slot racing in this country takes place, during a big final; although there is not so much at stake, it's a fact that the reactions and reflexes of these drivers in miniature are equal to that of their full-size counterparts.



... and slot racing ... the triumph of the 'thingy'

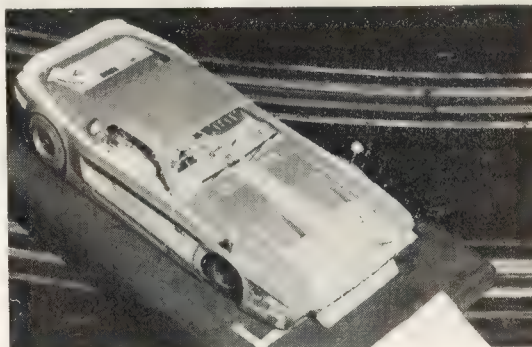
Talk of speeds which increase every year leads us ultimately on to electric slot car racing which, in both its scales (1/32nd and 1/24th) now assumes proportions which would have been unthinkable back in 1963 and 1964 when it all began to happen. In those early days, much talk of the 'thingy' and how much damage to the sport these unscalish, functional speed machines would do was in vogue but, sad to relate, the warnings at the time seem to have gone unheeded. The situation at present is that a full circle has been turned in that 1/24th scale raceway cars (as at Tottenham, for example) now look much more like full size racing cars than do the Electric Car Racing Association's 1/32nd scale counterparts! The E.C.R.A. has wrestled with itself over the question of scale pretty well ever since its inception and those enthusiasts within its ranks who pressed for the relaxing of strict scale rules and argued that it was justified to sacrifice scalishness for speed

would seem to have won.

The big difference, to our minds, between the Raceway and Club and E.C.R.A. activities is simply that a 1/32nd scale clubman builds a 'stable' of cars in the various classes which he 'makes last' throughout a series of competitions often over a period of months; the raceway driver builds just one incredibly hairy and beautifully prepared car for a particular event which is all over in the space of a Sunday, after which the model becomes instantly obsolete. It's not surprising, therefore, that the average clubman's model looks pretty battered and grimy after weeks of constant racing, while the Concours entries at Tottenham Model Raceways with their incredible paint schemes (which extend as far as psychedelic drivers' overalls) draw a larger share of admiration.

It's an important fact, too, that a dead accurate scale model slot racer just does not handle and since racing each other is what this exciting sport is all about, it's not surprising that the once dreaded 'thingy' is now the rule rather than the exception.

Typical of the quality of raceway cars in this concours - winning Mustang Mach 1 model complete with brightly detailed interior, racing mirrors etc.





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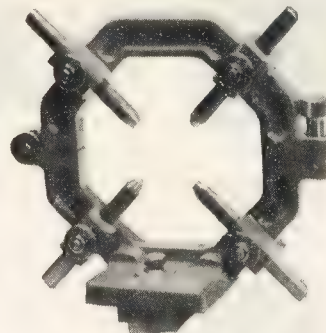
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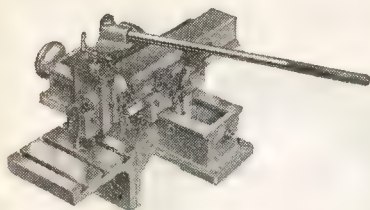
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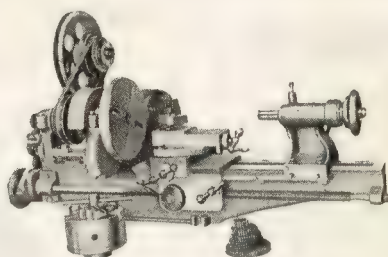
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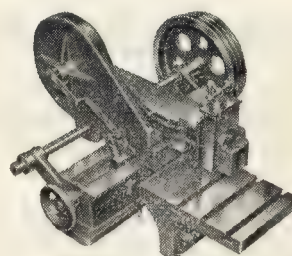
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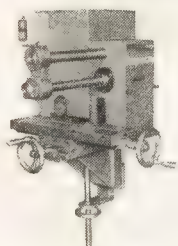
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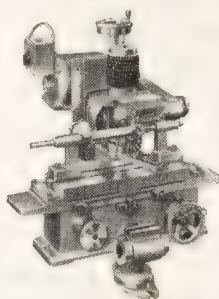
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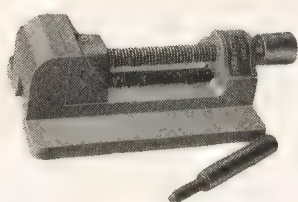
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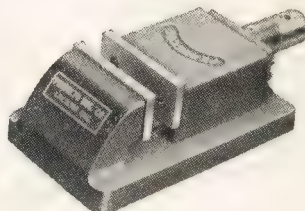
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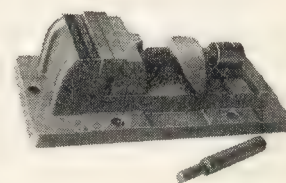
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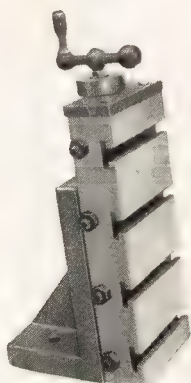
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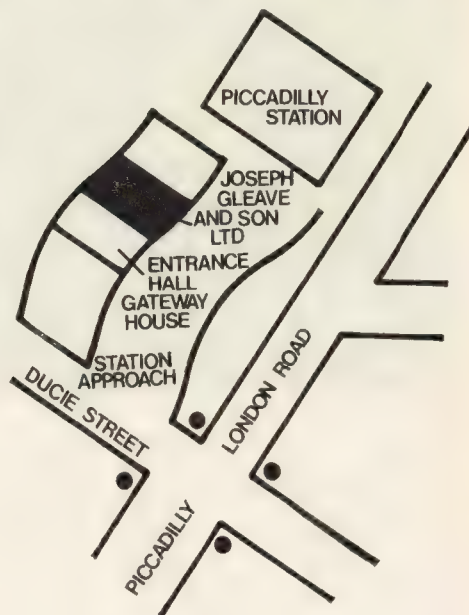
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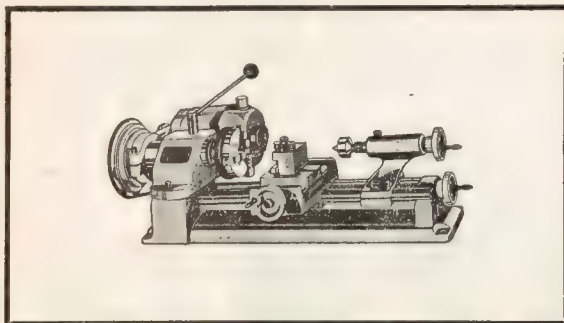


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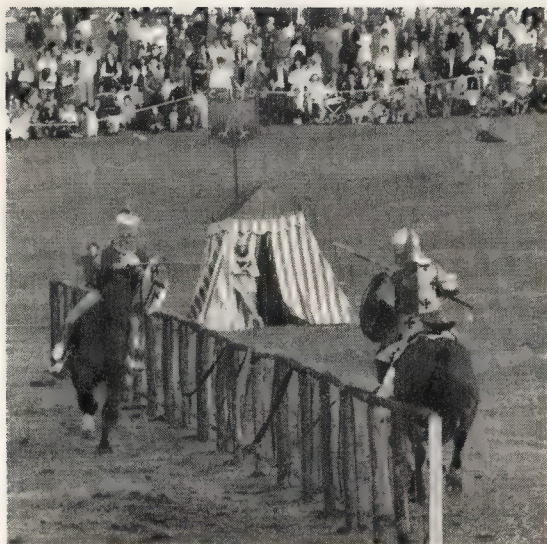
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The Exciting Progress of Military Modelling

MILITARY MODELLING EDITOR

ALEC GEE REVIEWS 1972

Regular tournaments with full-size armoured knights have attracted capacity crowds at such traditional venues as The Tower of London and Nottingham Castle during the summer months. (Photo courtesy of The British Tourist Authority.)

IT'S HARD to believe that this 42nd Model Engineer Exhibition marks only the second anniversary of the publication of our top selling monthly hobby journal *Military Modelling*. As this is read, the first of our exciting 'large-size' international A4 (11 $\frac{3}{4}$ " x 8 $\frac{1}{2}$ ") issues is just on sale and the fact that such a truly phenomenal popularity and growth has made this possible in two short years epitomizes the whole of the military modelling scene.

Unlike other facets of the model making hobby which we have seen mushroom overnight and wither away just as quickly, it's encouraging to report that this is unlikely to be the case with military modelling; one automatically thinks of the boom, particularly in America, in electric model car slot racing which reached its peak from 1967 to 1970, but today, both here and in America, remains as only a ghost of the hobby it used to be. Although in many respects the boom in military modelling has struck just as suddenly over the past two or three years, the whole atmosphere of developments has been one of caution and common sense, particularly on the part of the trade. Unlike the model car hobby and its associated trade of some years ago, there seems to be genuine discernment amongst manufacturers and suppliers of all items military, and much less of what one can only term rubbish which did so much damage in the days of

model slot cars. A sophisticated buying (and reading) modelling public now demands quality and authenticity in what is, after all, very much a 'scale' orientated hobby, and this incorporates its own built-in system for acceptance or rejection of what is good and what isn't; woe betide the established manufacturer who allows his standards to fall for whatever reason, and a newcomer contemplating the production of sub-standard merchandise with an eye to 'making a killing' simply need not bother.

Having got that off our chests, it would be appropriate to look at the developments within the trade over the past twelve months and, in fact, as we said, it's mostly been of an extremely high quality.

Figures

It's been a truly tremendous year for military figure enthusiasts with a host of new arrivals in a

variety of scales; whether for display purposes or wargaming, everyone has been well catered for. January 1972 was memorable as the month in which Airfix Limited 'replied' to the well established French Historex plastic figure kits with two superb 54 mm subjects of their own, a Guardsman of the 2nd (Coldstream) Regiment of Foot Guards and a Hussar of the 10th Regiment, a fine mounted figure whose horse, if anything, has proved more acceptable to many being more sturdily built than the perhaps, too slender and artistic, Historex charger. The most exciting thing about these new kits was the prices; 17p and 24p respectively, making it possible at last for even the youngest enthusiast to start the hobby at reasonable expense.

Later in the year came the first 54 mm British subject from Historex in plastic, a fine Scots Grey subject and, as we go to press, Airfix's 42nd Highlander (Black



Typical of the high quality of metal model soldier figures which have been produced over the past year are four examples from the fine Series 77 range of 77 mm. scale Ancient Greeks.

Watch) figure is still fairly newly released and their own Scots Grey is just in the shops. Two more are promised from Airfix and these, together with all the new plastic figures from manufacturers like S.E.G.O.M., Almarks and even Timpo Toys, whose 'Action Packs' deserve elevation from the 'toy' category, have made it a bumper year for plastic figure enthusiasts.

On the metal figure front, the accent has been an encouraging break away from the Napoleonic era with a variety of manufacturers, both established and newcomers, producing less usual subjects which have quickly found favour. Series 77, for instance, started the year with a fine series of Landsknechts and round off 1972 with a series of superb Greek Warriors in the big 77 mm size; newcomers, Trophy Minia-

in a miniscule 15 mm scale; this could be the start of big (or even little) things and, supported as they are by an equal, if not greater, interest in small scale A.F.V. models as we shall see, the entire super-miniature scene will, we predict, grow rapidly this year.

Tanks and Armoured Fighting Vehicles

Unbelievably, there are famous, well-established plastic kit manufacturers who have more kits for tanks and armoured fighting vehicles in their ranges than for aircraft; if anything is indicative of interest in the hobby at the moment, this fact must surely be considered as a plain pointer to the direction in which things are moving. There have been literally scores of new kits released over the past 12 months and, as one

track personnel carrier models as well as exciting back-up lines of plastic Second World War figures. No less prolific have been Japanese manufacturers like Nichimo, Otaki, and Bandai whose ranges have all increased and whose products are easily available to modellers in this country. On the home front, Airfix Limited have increased their range of 1/76th scale subjects and other encouraging signs are whispers from this Company of a new range of larger scale armoured fighting vehicles.

Models of tanks are now available in scales from 1/200th to 1/15th, and super-miniature A.F.V. fans are well catered for by no less than two British firms, one American and famous West German Mercator, whose range of 1/200th scale subjects is getting on for 250. On the scratchbuilding side, enthusiasts who prefer to 'build their own' have never been better catered for with plastic card, rod and strip etc., in plentiful supply and in a complete range of thicknesses; just as easy to get are paints with Humbrol Limited leading the field with their special tinlet sets which must cater for military modellers of every type with specific sets for uniform colours, tank colours, and even a military equipment pack with leather and all the types of metal.

There's never been more truly acceptable and top quality merchandise in the model shops than there is now, be it paints and materials, model soldier figures in kit or finished form or plastic kits for tanks, trucks and guns.

Wargaming . . . Big and Small

Proceeding apace with activities on the model making side



The 1/24th scale Jagdpanther by Japanese Tamiya well illustrates the fact that throughout 1972 more and more plastic kit manufacturers adopted the policy of the inclusion of model soldier figures with their kits - referred to in the text.

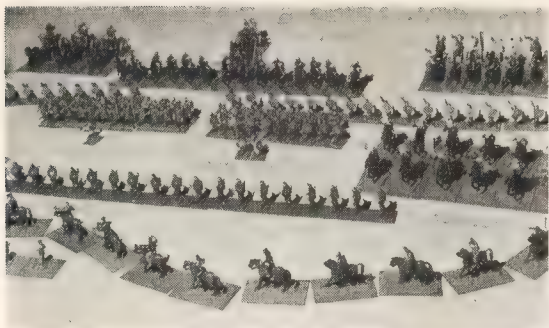
tures, open their batting in 54 mm scale with a 13th Century mounted knight, a Byzantine Cavalryman and a mounted figure of Marshal Ney, and there is talk of Japanese Samurai figures to come during this year. All the major manufacturers have increased their ranges, Hinchliffe Models, for instance, catering for the wargamer in fine style with, at one period throughout last year, no less than 150 new figures in a six-month period! Rose Miniatures produced second world war German and British troops as well as their own series of fine Greek subjects and, in conjunction with the release of the film, 'Young Winston' Phoenix Model Developments even produced a mounted figure of Churchill!

Perhaps the most interesting development (and certainly one which holds much promise for this year) has been the sudden surge of popularity in 'Micro - Miniatures' figures and a whole range of Marlburian subjects came on the market late last year

would expect, by far the largest majority of these have come from Japan. Tamiya, for instance really have the military bug and 1972 saw releases from them of a plethora of tanks in a host of scales plus less usual subjects in the form of the German Second World War B.M.W. motor cycle combination and S.D.K.F.Z. half

Attractive combination of 1/35th scale plastic model soldier figures and a plastic kit by Japanese Tamiya - the German BMW R75 motorcycle and sidecar outfit of the Second World War.





A sight to gladden the heart of any wargamer and, more particularly, a devotee of Ancients; a complete Persian Army (early period) converted mainly from Airfix OO/HO scale figures by a battle gamer.

have been parallel developments in wargaming; wargamers are a difficult section of the military modelling fraternity to classify as so many are themselves pure model makers as well as wargamers. All of the various Societies report increasing memberships, none more so than the Society of Ancients which, again, is an encouraging signpost to the increasing interest in the hobby; if so many are interested in what must surely be a specialist division of the hobby, then interest in other fields can be assumed to be growing in proportion.

Present Arms 1972 down at Southend early in the year brought the same intense wargames activity and interest and indeed, the same has been true for the rest of the year; if anyone is in doubts as to the popularity and pure 'crowd appeal' of wargaming, then activities here at this 42nd Model Engineer Exhibition will surely convince them.

Full size wargaming, for such it can only be termed, has been much in evidence too over the past twelve months; in addition to the jousting tournaments and the like which we can recall at village fairs and fetes, etc., throughout the year, the Sealed Knot Limited has enjoyed one of its busiest years to date. Those who do not know of the Society will be interested to learn that this is a fully registered charity and has somewhere in the region of 1,600 to 1,800 members in this country with a further thousand scattered throughout the world. Basically, members dress themselves in costume of the English Civil War period (the name, Sealed Knot, derives from a secret Royalist Society of the time) and re-enact for their own benefit and that of the pub-

lic at military displays, fetes, etc., a particular battle or action from Parliamentarians versus Royalist times. The whole show is arranged upon extremely professional lines and there are somewhere in the region of 50 to 60 artillery pieces (which all fire black powder) within the Society; often scores of horses are hired from stunt stables and costumes, etc., are all normally made by the participants, but where plate armour, helmets and the like are required, the Society can usually borrow these from film armourers in fibre glass. Amongst the many prized possessions of the club are two enormous Napoleonic barrels mounted on period trails especially made by members of the Society and among others, proceeds from the Sealed Knot's performances go largely to the Army Service Museum. So popular, in fact, is the Society and its re-enactment of battles long ago, that it is on the cards at the present time for two jumbo jets full of 'Knots' to go to Australia to partake in 'British Month' some time this year!

The Written Word

It would be incomplete to close our above review of military modelling throughout 1972 without some reference to the vast quantities of newly-published material on our favourite subject; it's hard to think of a period not catered for in the shape of new books and this, like all other firm indications we have mentioned, points the way to a very bright future for the hobby and interests connected with it. Napoleonic titles have been in abundance but, in addition, there have been important books for modellers on the English Civil War, a fine new work published by Cassell entitled 'The Wargame', plenty of material on armoured fighting vehicles, guns and tanks and a host of titles concerned with model soldiers generally. For uniform colour enthusiasts, the Osprey series of books has increased over the months and for wargamers, Bellona have the first three in a new series, 'Battles for Wargamers', the first 'purpose-built' books of which we know, complete with fold-out maps of the battles to be read in conjunction with a description of the campaign.

But, perhaps the most encouraging signs of all, and ones which illustrate perfectly the current popularity of our hobby are the new magazines for modellers which have appeared during 1972; *Military Modelling* magazine, from its solitary position during 1971, is now joined by contemporary publications in healthy competition to cater for this rapidly expanding modelling interest.

Sealed Knot activities in Hereford; pike men amidst the smoke of battle, led by Officers, move up to close a serious breach in the Royalist line!



SOME EXHIBITION HIGHLIGHTS OF PAST YEARS

By Martin Evans

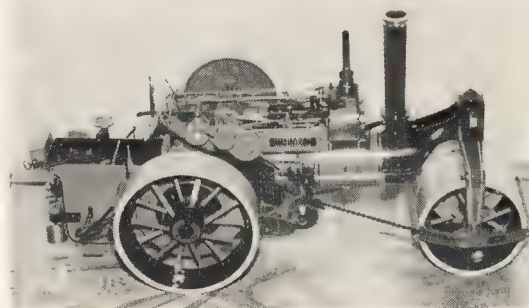
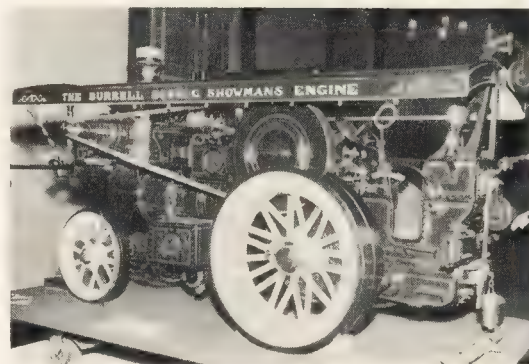
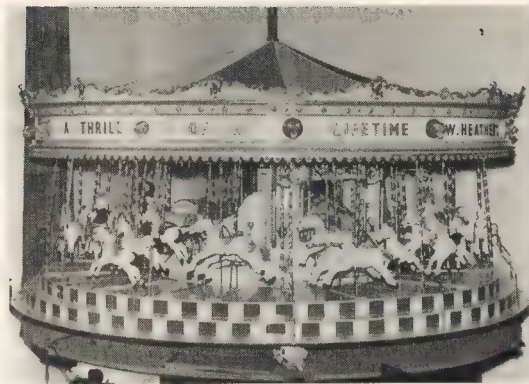
In previous Exhibition Extra issues, I have commented on the very prominent part the model steam locomotives play in the Exhibition competition classes, and have remarked that this has in no way fallen off now that the steam locomotive has been driven from our main lines by its diesel and electric rivals.

My impression is that 1973 will see an even greater number of model steam locomotives under construction, both in this country and overseas, than in past years. But in this short article, I would like to concentrate on some of the other classes of engineering models which have been brought to the Seymour Hall over the last few years to delight the eye of the enthusiast.

I think that one feature of the Model Engineer Exhibition which always surprises the newcomer is the enormous variety of the exhibits. For instance, at the 1970 Show, we had two remarkable model motor-cycles, a 1928 Model 80 Sunbeam racing motor-cycle and a Hagon J.A.P. sprint special. These perfect models, built by Mr. J. W. W. Gough, were awarded a Silver Medal.

One of the most outstanding models of any kind was the $\frac{1}{4}$ in. scale Aveling and Porter compound steam road roller by Miss Cherry Hinds, which took the Duke of Edinburgh Trophy in 1971. Many visitors who admired this model seemed doubtful whether it was an actual working model but I am assured that it has worked under its own steam.

Some may say that the making of clocks is not model engineering, but the fact remains that the work involved is very similar, involving as it does lathe work, gear-cutting and much skilled hand-work.

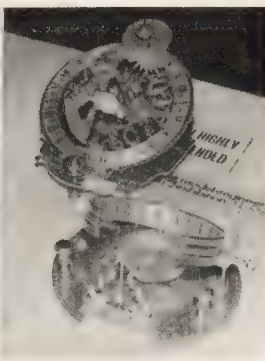


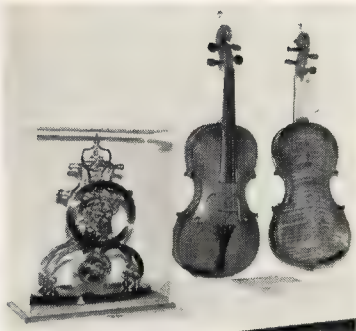
Top: Magnificent Gallopers on W. H. Heather's Roundabout, which embraced lights, music and movement and ultimately had riders added to the horses.

Upper middle: Mr. V. J. Bailey's Burrell, which contained authentic detail such as the water bucket at rear.

Above: Miss Cherry Hinds' delightful miniature which gave visitors an immense amount of pleasure.

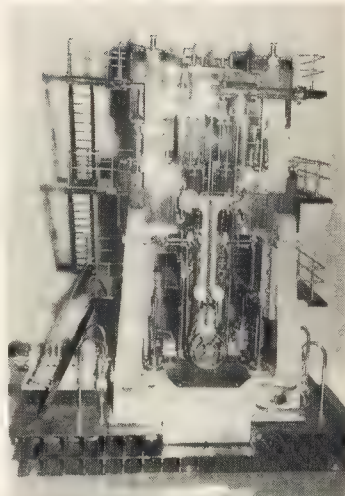
Left: Typical of Claude Reeve's fine work is this bracket clock. Less usual are H. A. Everard's remarkable sundials.





Left: Versatility! Violins also by Claude Reeve! Plus another of his clocks.

Right: C Cole's compound vertical marine engine - truly a tour-de-force.



Apart from that, quite a few model engineers *do* make clocks of various types, the weight-driven and spring-driven kinds being usually the most popular. One of my pictures shows an eight-day striking and repeating bracket clock made by Mr. Claude B. Reeve. This is mounted in a Burr Walnut case, and repeats the quarters on six bells also repeats the hours as well as striking the hours normally. It was awarded a Silver Medal.

Another of my pictures shows three sundials beautifully made by Mr. H. L. Everard. These interesting instruments involved much neat engraving and skilful hand-work.

Marine engine models are unfortunately not quite so popular as they used to be; nevertheless, we have seen some very fine ones in recent years, such as the twin tandem compound engine built by Mr. C. Cole of Amptill, Beds.; based on an engine built by the North Eastern Marine Engineering Co., and installed in the liner *City of New York*. The model was awarded a Championship Cup and the Bradbury Winter Memorial Trophy.

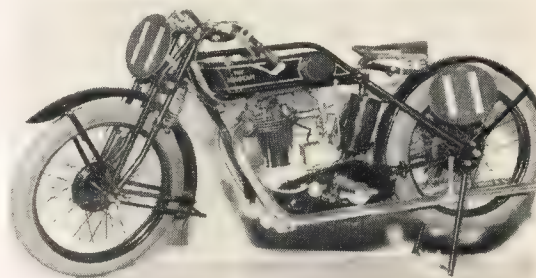
Recent years have seen an increase in the size of many of the model traction and ploughing engines being built. A typical example of this trend is the 4 in. scale Allchin traction engine which gained Mr. G. E. Stubbs a Silver Medal. This engine weighs no less than 12 cwt. and has hauled a load of over 4 tons with ease. Mr. Stubbs is believed to be now building an even larger engine—a 4½ in. scale Burrell.

A type of model which has become more popular over the last two years is the steam fire engine, and readers may remember the late Edgar Westbury's design for a Shand Mason, which is proving most successful. Sometimes the builder also tackles the horses, and model horses are notoriously difficult to make! But perhaps the most colourful model of all

Below: Unusual vintage Sunbeam motor-cycle model by J. W. W. Gough which provided everything except a little man to ride it.

is the galloping horse roundabout, especially if driven by the traditional steam 'centre' engine. A very fine electrically-driven 'three-abreast' was shown in 1969 by the late W. H. Heather, and was awarded a Silver Medal.

Apart from the Competition Models one of the most popular features of the last two M.E. Exhibitions was the Workshop Stand of the Society of Model and Experimental Engineers, where model engineers were able to meet some of our technical consultants and discuss their various problems and watch practical demonstrations of lathe work, the use of milling and drilling machines and many other aspects of this most fascinating hobby.



The magic of steam

(continued from page 3)

Interest in matters military - model soldiers and wargaming seem to be two distinct branches of the hobby - will be catered for in the Lecture Hall, with static models, enthusiast societies and books and magazines. Wargames will be fought in the Committee Room, with set battles, fixed times, running commentary and entry by ticket.

We are happy to welcome to this country for the first time the delightful diorama that has graced the Musée de l'Armée in Paris for several years. This shows Napoleon reviewing his troops before a triumphal arch, comprises some 299 figures - which

move past in review. This was created by Historex for the bicentenary of Napoleon's birth.

Craft enthusiasts will no doubt be pleased to see and hear Gildas Jaffranou making and playing his folk harps, so popular when described in *Woodworker* and now the subject of a book.

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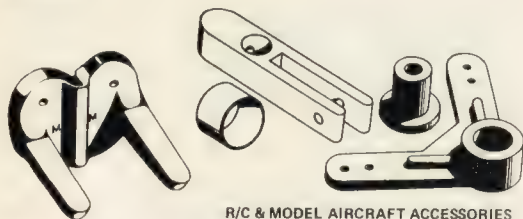
So, we have introduced our main characters and, like the ringmasters that we are, step back and invite you to enjoy the show.

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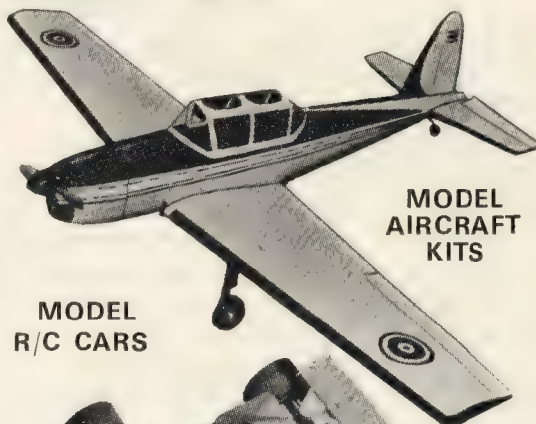
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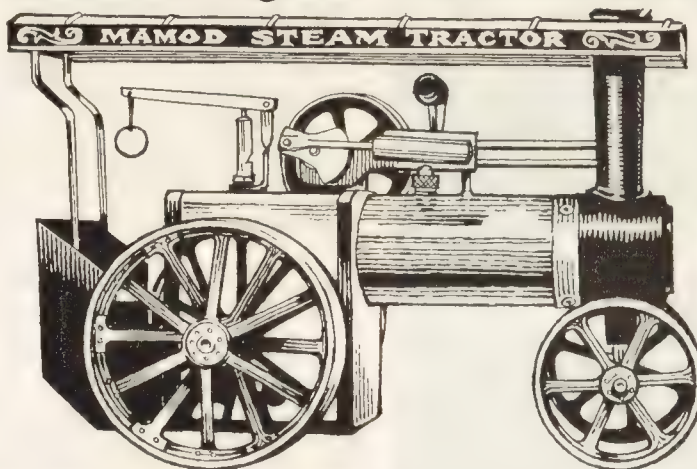
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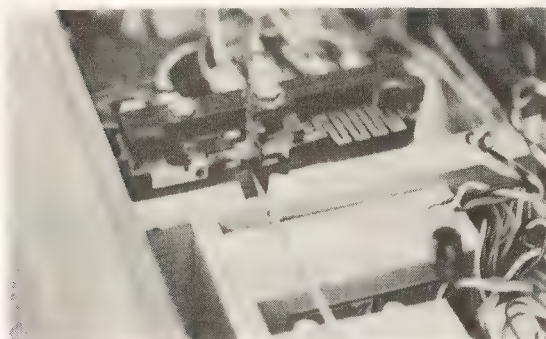
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Heading: Half of the team who will be performing with their 'Corker' models. L. to r. Michael Preston, Ian Holliday, Haywood, Ian Jones.

Below: Switchgear built from bits of a washing machine. Switch gives parallel or series connection with off in mid position.

Bottom: Prototype Corker built by Michael Preston of Wulfruna M.P.B.C., made in his fourth year. He will lead the display. Model is shown with MacGregor single-channel transmitter.



PROJECTS AT PENDEFORD

G. PRESTON, HEAD OF TECHNICAL STUDIES DEPARTMENT, TALKS OF HIS SCHOOL'S AMBITIOUS ACTIVITIES, PENDEFORD BOYS WILL BE PUTTING ON A SHOW AT THE BOATING MARINA

PROJECTS have been a definite part of the school curriculum at Pendeford High School, Wolverhampton, since 1968.

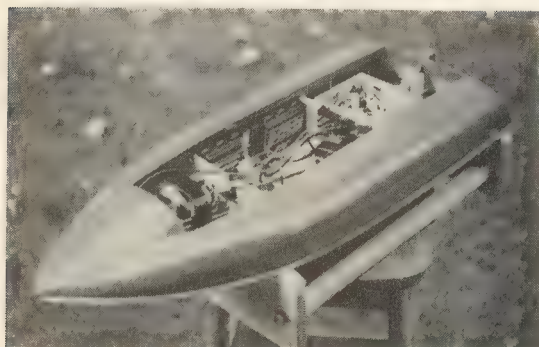
Previously work in the Technical Studies Department which was of an unusual nature had been left for the sixth form to investigate. There seemed to be a lack of motivation and the reason was not difficult to see. The need to concentrate on examination syllabuses left little time for the open ended problems in the fourth and fifth years. The sixth forms were starting from scratch. Not a healthy situation. A wide approach to craft/technical lessons was necessary in the lower age groups at the school. The model magazines published by M.A.P. are read regularly by almost all the boys at the school. We have always had a soft spot for the Meccano Mag. which seems to find articles to suit all tastes and age groups.

It was in June 1968 that a simple submarine by Lieut. Cmdr. Greenhalgh R.N. caught our eye. It looked just the thing for the third year boys. A reasonably simple design: a piece of yellow pine planed square to start with; metalwork was needed for certain parts; Technical Drawing could be used to obtain working drawings; it had a simple form of propulsion, rubber; casting could be used for the lead ballast and, what is more, it was a model that actually moved under its own power. The challenge was on, to be the first to get a submarine to travel across the school lily pond, a distance of 20 yards. Who could beat the teacher?

We experimented with ballast and position of hydrovanes; with two-bladed propellers and three-bladed ones; different diameters and different blade areas; some of the ideas proved to be more successful than others. We obtained an enormous amount of experience and reasoning with our simple subs but what is more important we really enjoyed it and, by the way, our exam results by the same boys this year were the best we have ever had.

What to do next? It is always difficult to find something different after an initial success. Look in the Meccano Mags. again. July 1969, Radio Control 4-2. A bit on the expensive side for group work? Could a 14-year-old manage to build a Corker with success guaranteed? How about getting one of the submarine boys to have a try on his own in secret. He made a very nice job of his Corker and it must have covered many miles since the launching ceremony.

The boys in 3L2, 1971, divided into three groups of six. One group chose aircraft and used up some unfinished achilles wings on a body of our own design. The second group are still working on the



radio 4-2 car design, and the third group are responsible for the present Corker type boats.

Each boy constructed a box of $\frac{1}{8}$ inch balsa, 14 inches long by $6\frac{1}{2}$ inches wide by 2 inches deep; the rest of the design is his own. The boats are made from Solarbo balsa, covered in Modelspan tissue and brush finished with low bake car cellulose. They are all powered by Monoperm Super Specials with 30 mm propellers. The power supply is 6 volts obtained from 1.2 AH Saft nicad modular packs or Matsushita No. 64 lead acids.

Our radios are all MacGregor, powermac, codamac, digi 1 + 1 and digi III.

The boys are now in their 4th year and have had to complete their boats in their own time, either mid-day or after school. They are all sponsored to some extent by firms in our catchment area. We have had considerable help and encouragement from MacGregor Radio Control Industries. We are very grateful to the many people who have shown an interest and given us assistance.

At the time of writing several problems still remain to be solved. The main difficulty in a formation display of six boats is maintaining the same speed. This at present is an open-ended situation which we shall enjoy solving.

Due to the success of our venture from a teaching angle, boys in the 2nd year are building '*Splinter*', a small model yacht. If an artificial wind can be created we will be back next year with an indoor regatta; but that is another story.

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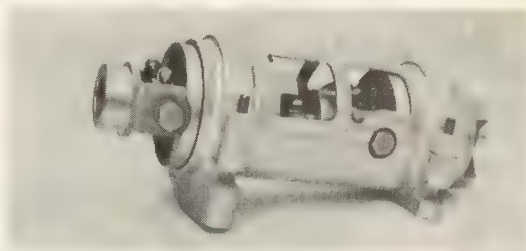
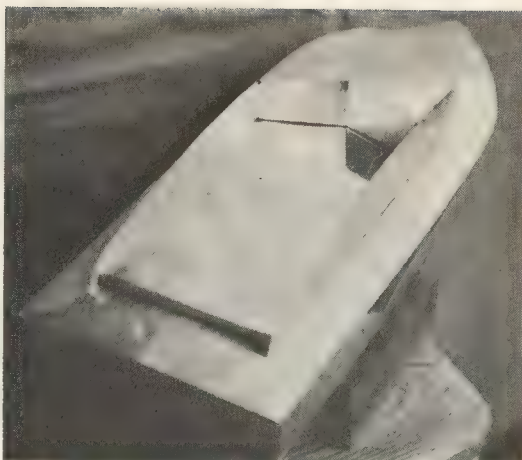
Top left: Volkswagen fan motor powered model. Spaghetti will be reduced when ideal battery trim found.

Top right: Experimental model made up in tinplate from wooden mould to the Corker hull design.

Upper middle: Close-up of Volkswagen motor, showing delco frame with ballraces. This frame reduces weight by 8 oz.

Lower middle: Power plant for Muji 2 consists of twin Sea Wasp 12s in line. Mount is from home-made pattern cast in aluminium and machined to fit the motors.

Right: Some of the other members: L. to r. Jagdip Grewal, Ian Jones, Ian Holliday and David Price.



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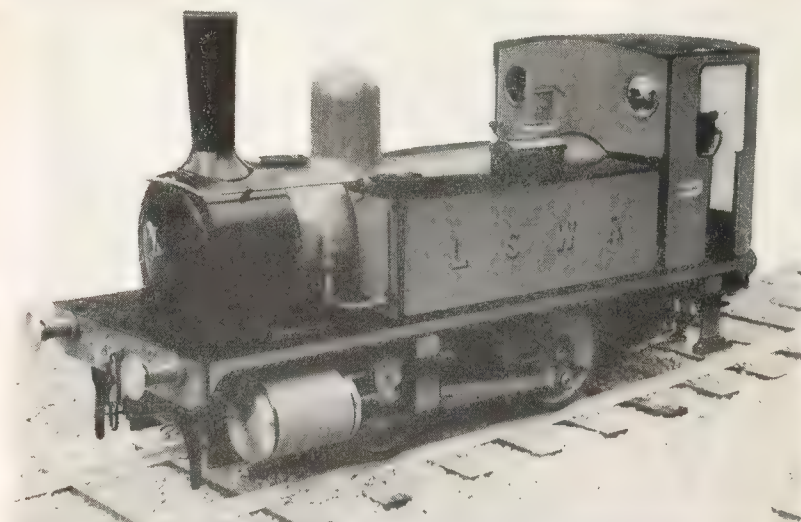
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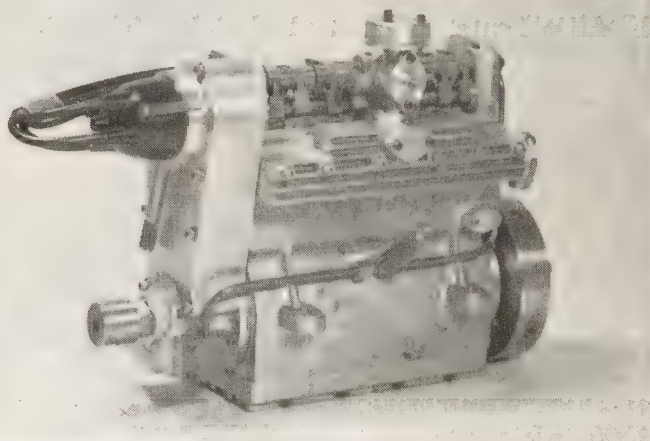
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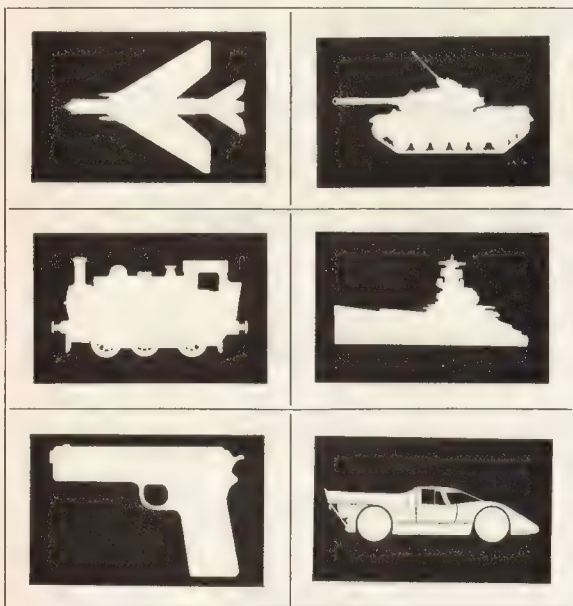
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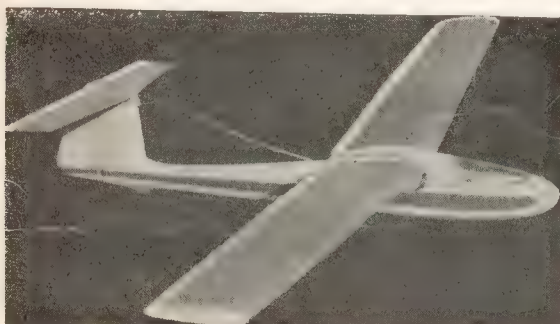
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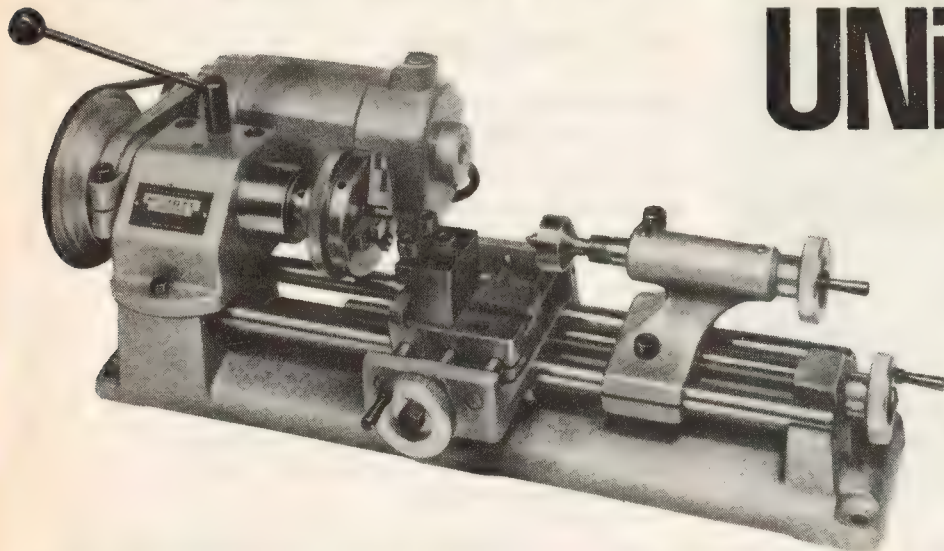
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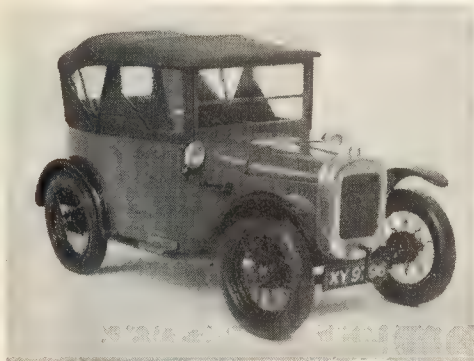
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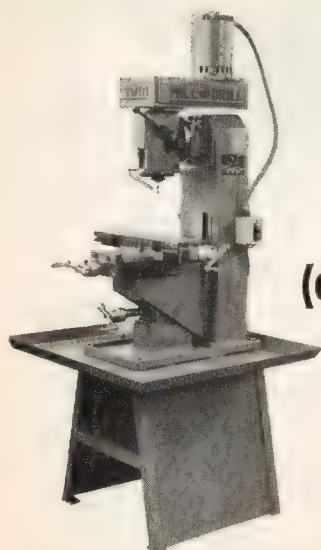
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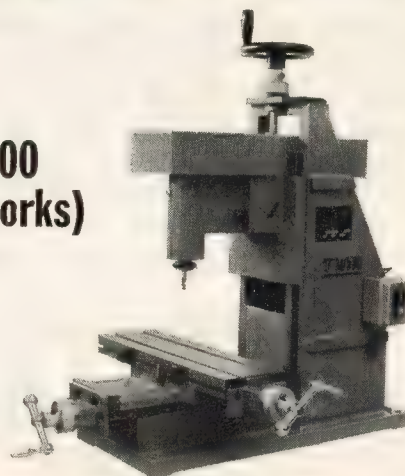
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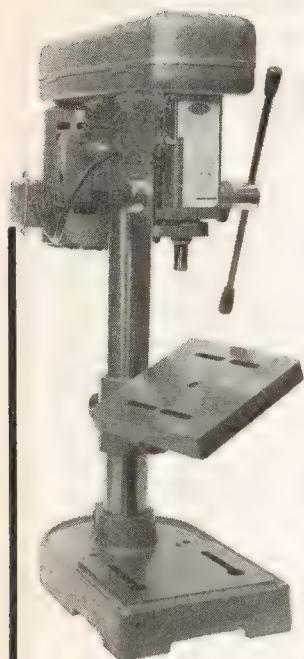
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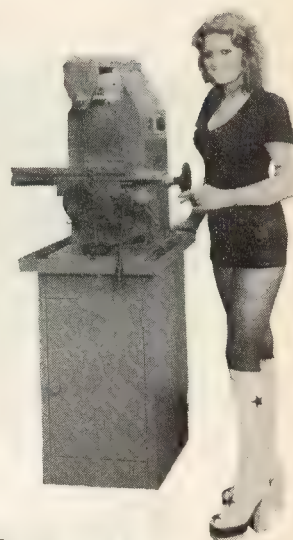
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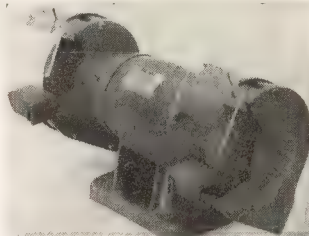
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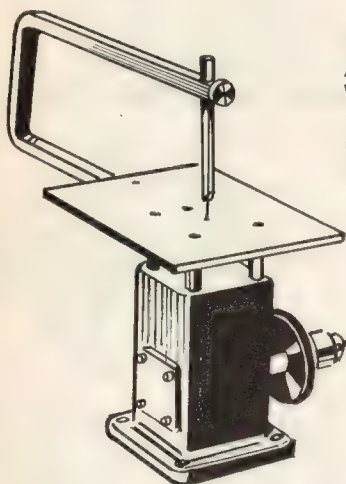
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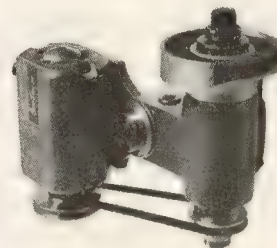


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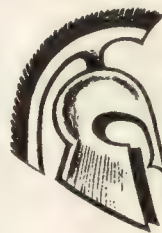
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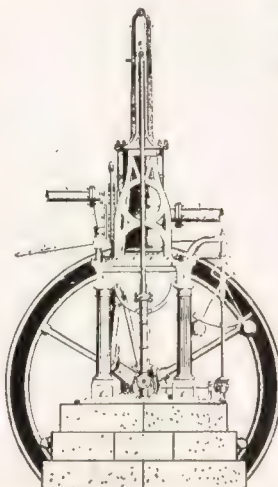
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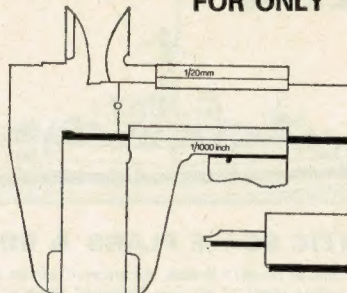
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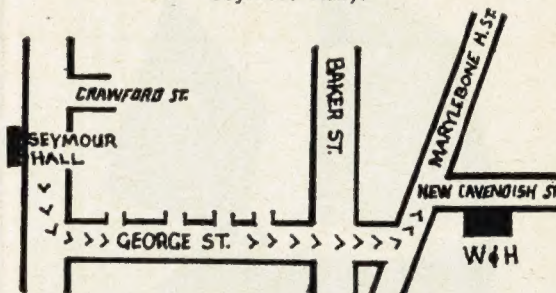
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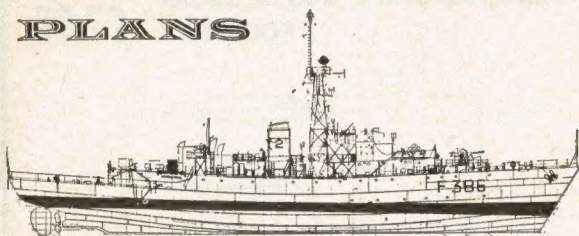
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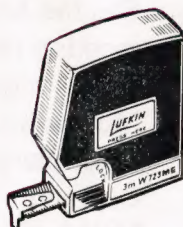


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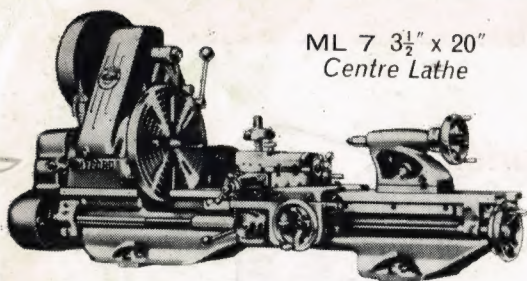


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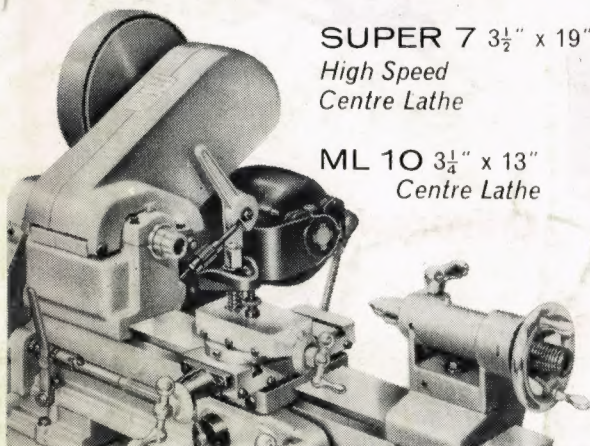
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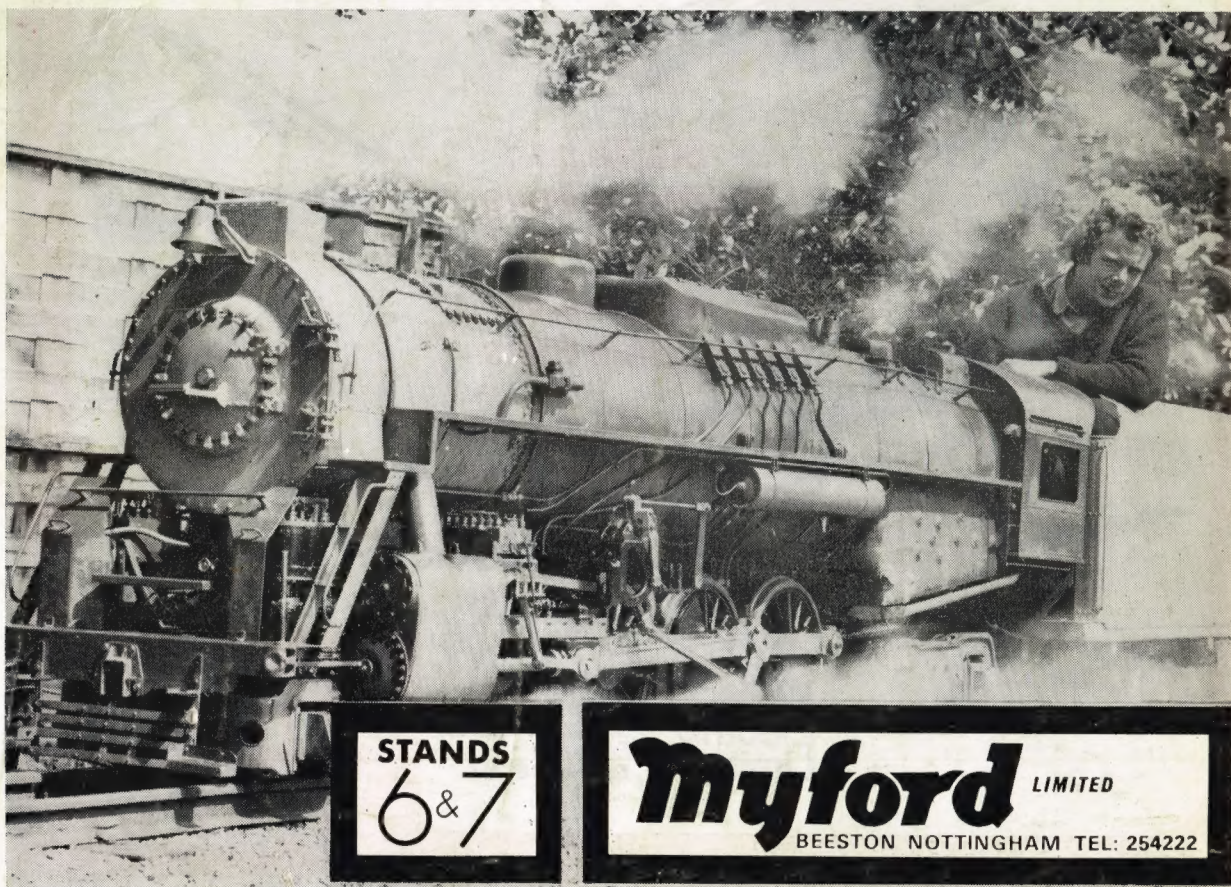
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